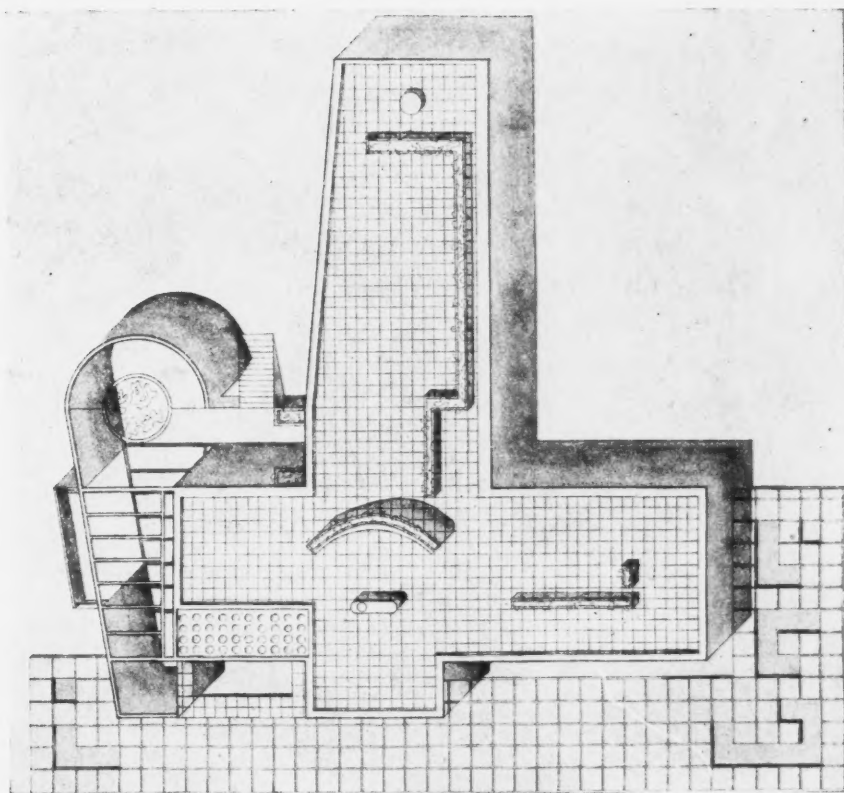


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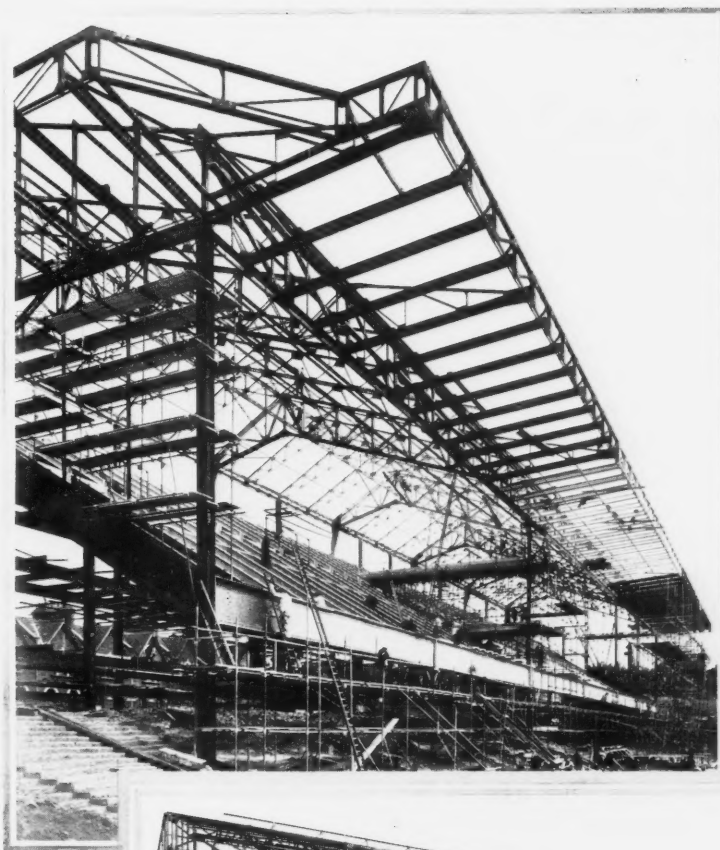
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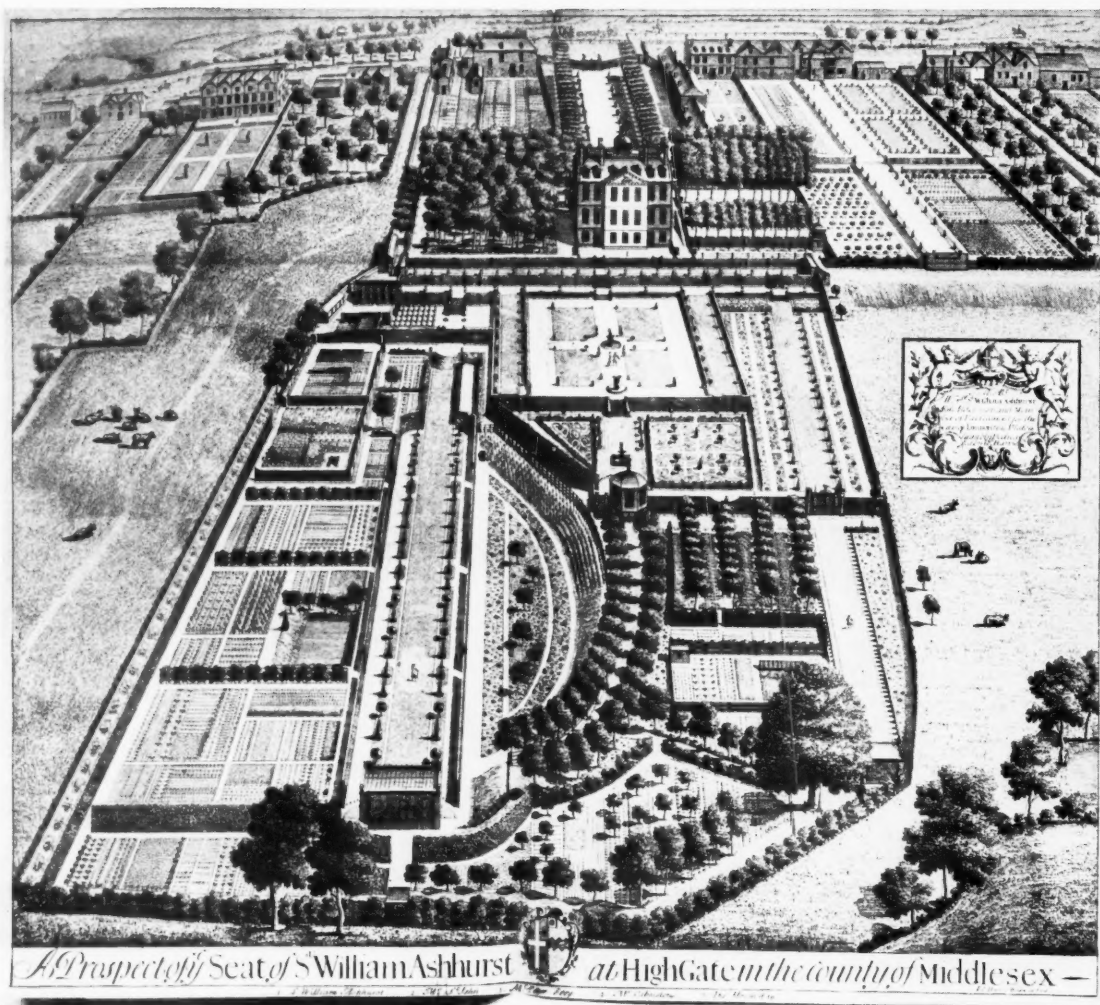
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ASHURST HOUSE, HIGHGATE : circa 1710

On the same site, near the centre of Highgate Village, have stood successively the house of William Blake (founder in the middle of the seventeenth century of the Lady's Charity School that adjoined it), Ashurst House, the residence of Sir William Ashurst, merchant tailor and Lord Mayor of London, and St. Michael's church, built in 1832 from the designs of Lewis Vulliamy (and still standing). The illustration of Ashurst House comes from the new volume of the L.C.C. Survey of London: vol. XVII, *The Village of Highgate (Parish of St. Pancras, Part I)*. The L.C.C. Survey, and the magnificent work it is doing, is well known. One of its virtues is that (unlike the county surveys of the Royal Commission on Historical Monuments) it does not stop short at the beginning of the eighteenth

century, just when the Renaissance was becoming assimilated and a universal architectural idiom beginning to establish itself. In the case of the Highgate volume this is especially fortunate as the value of Highgate Village is its unique character as an elegant group of eighteenth-century houses which served as week-end retreats for gentlemen from London. Today it survives as one of the best collections of eighteenth-century domestic work accessible from London. A complete record of the Village is, therefore, invaluable. The volume covers all of it that comes within the L.C.C. boundaries, and includes the most comprehensive account yet published of Ken Wood, the distinguished Adam mansion that still survives surrounded by its park.

Prophets of the Modern Movement

By Nicolette Gray

THE great social and æsthetic problem of the nineteenth century was, as it is today, the reconciliation of art and mechanization. The fact that the problem is still ours is an obvious proof that the nineteenth century failed to solve it. How far did they try? We naturally remember the great Victorians: Pugin, Ruskin, Morris, Pater, who with a pessimism born perhaps of the profundity of their imaginative understanding gave up the attempt. But an attempt was made and the symbol of that attempt was the Great Exhibition of 1851. But the Exhibition was a symbol, not an achievement. Probably the only exhibit which adequately fulfilled the idea which it symbolized was the building—and that was almost an accident. And afterwards the whole attempt petered out. But it is interesting, now that optimism has once more revived, to see to what extent we are back again at the position of 1851.

Mr. Pevsner, in his *Pioneers of the Modern Movement*, complains of three objects that he takes as typical of the specimens of the Great Exhibition: a carpet where "we are forced to step over bulging scrolls and into large, unpleasantly realistic flowers; it seems unbelievable that the teaching of Persian carpets should have been so completely forgotten"; a silk shawl with "the same ignorance of that basic need in creating patterns, the integrity of the surface . . . how could those shapeless leaves or tongues be tolerated and how those thoughtless little landscapes?" silverware in which "the insensibility of the artist towards the beauty of pure shape, pure material, pure decorative pattern, is monstrous."

Exactly the same criticisms were made in 1851.

In the report of the Juries set up to judge the exhibits, in the lectures on the results of the Exhibition given to the Royal Society of Arts, and in the evidence given before the Select Committee of the House of Commons, these same complaints are reiterated. Carpets which seem to rise and swell, where one steps on "water lilies floating on their natural bed" or "fruits and flowers poured forth in overwhelming abundance in all the glory of their shades and hues" are condemned. The principle that designs on all textile surfaces should be flat, that only drastically conventionalized representations of natural objects are compatible with the primary necessity of preserving the unity of the surface which they decorate, is emphatically stated; and attention is drawn to Oriental examples. The insensibility of the silversmiths' work is traced to the system by which one man designs and another executes the work, and is deplored.

To some contemporaries at least the Great Exhibition was not an occasion for complacency but for new reform. "Let us hope that the time is coming when England will seize eagerly every proper means of improvement . . . there seems a likelihood that the Great Exhibition of the Industry of all Nations will be valuable to all in showing shortcomings as well as excellencies; and to none will it be more so than to the British nation, if it awakens us to a knowledge of our deficiency in ornamental art

and to a hearty endeavour immediately to remedy it."

These words were written by Richard Redgrave, R.A. (1804-88), Juror to the Exhibition and Reporter on design, a painter of very typical early Victorian pictures, head of the Government Department of Practical Art, and largely instrumental in the foundation of the Victoria and Albert Museum. Very closely associated with him in ideas in 1850 were: Matthew Digby Wyatt (1820-77), secretary to the executive committee of the Exhibition, the architect of Alford House, the Adelphi theatre and, with Brunel, Paddington Station, and first Slade Professor at Cambridge; Owen Jones (1809-74), designer of the interior decoration and superintendent of the building operations in the Crystal Palace, and author of *The Grammar of Ornament*; and Henry Noel Humphries (1810-79), who appears, to his chagrin to have had nothing to do with the Exhibition, but who was intimately connected with Owen Jones in their work in chromo-lithography.

We should probably dislike much of the work of these men and disagree with their taste, but I hope to show that their theories are important, if puzzling, evidence in the obscure history of Victorian Art. All the quotations which I give are from writings of 1852 and 1853, except one which dates from 1835. A bibliography is at the end.

Their starting point was an absolute condemnation of nineteenth-century revivalism and its results as an entirely retrograde step and an abuse of modern scientific progress. Not only does tradition "hand down to us things, both good and bad, both equally consecrated to most minds by the authority of time" (Redgrave), but not equally worthy of respect; but any art—however good, as was Gothic, in its day—must be bad and false in an age with new needs and ways of living. "I mourn over the losses which this age has suffered and still continues to suffer, by so many fine minds devoting all their talents to the reproduction of a galvanized corpse. Could the new wants to be supplied, the new materials at command, the new sentiments to be expressed, find no other echo in their admonitions? Alas! has iron been forged in vain? . . . More than this, instead of new materials and new processes suggesting to the artist new forms more in harmony with them, he has moulded them to his own will and made them, so to speak, accomplices of his crime. The tracery of Gothic windows, generated by the masons' art, have been reproduced in cast iron, the Doric columns of Greek temples, which owe their peculiar form and bulk to the necessities of stone, have been made a hollow iron sham."—(Owen Jones.)

In industrial art they trace the systematic transgression of every principle of design, not to the use of the machine, nor necessarily to the search for cheapness, but to the way in which "man has become only the servant of the machine," and artistic features have been entirely lost sight of. Noel Humphries draws a rich comparison between the comfort and beauty of the French factory at Malonais and an English one. "Black and naked walls

frown darkly and ominously upon the spectator—a sadness creeps over him—no wonder that he shudders: he is in the vicinity of a Lancashire cotton factory. It is a country blasted and disfigured by soot and smoke, and by the trampling of reckless feet confined to no path; for there is no garden—no tree—no flower—nothing of Nature . . . But, reader, this state of things is—*economy*! The absence of comfort, of gardens, of trees, of flowers, has ‘reduced the calicoes by a farthing per yard.’” Redgrave insists that manufacturers should raise the status of the designer. “Often in this country artists are paid little better than workmen, and a belief seems to prevail that knowledge, skill and taste come by Nature: the artist has often no interest in the results of his labours, his name is unknown, his pay niggardly and what there may be of beauty and excellence in his work is often spoiled by the alterations of the manufacturer . . . Moreover, our greatest difficulty consists even less in the want of designers than of skilled art workmen to carry out designs. A design for cotton printing may be spoiled by the ‘putter-on,’ or for silk by him who prepares it for the loom.” Again, there is dislocation between architecture and industrial design. “In all times but our own all ornamentation resulted from architecture; in the present age we have no guiding principle in its design or unity in its application; the architect has abandoned to inferior hands that which was his especial province.”—(Owen Jones.) The solution is to change the education of architects, to improve the local schools of design for workmen, to attempt to bring home to the public the true principles of design.

What are those principles? “By means of design we inscribe, or ought to inscribe, upon every object of which we determine the form, all essential particulars concerning its material, its method of construction and its uses. . . .” It will be recognized that Nature “has a style of form and detail particular and appropriate to every material in which she works and that this style of form and detail is, in every case, modified by the exact method in which her operations of manufacture are conducted. One material in her production never looks like another. Never does a flower look like a piece of metal—never a piece of timber like a rock.”—(Digby Wyatt.) This should be the artist’s model. Ornament must conform to the material and be subservient to the utility of the object. “The major error of the Exhibition is over-ornamentation, an error which is apt to sicken us of decoration, and leads us to admire those objects of absolute utility (the machines and utensils of various kinds), where use is so paramount that ornament is repudiated and fitness of purpose being the end sought, a noble simplicity will result.”—(Redgrave.) Throughout his report Redgrave continually condemns objects as unpractical: furniture takes up too much room and cannot be dusted, grates “require that a whitesmith should form part of our establishment,” jugs are hard to pour from and almost impossible to wash. The complaint about ornament, too much ornament, unsuitable ornament, realistic ornament, is perpetual. Ornaments should be flat, conventional, or better still, entirely unrepresentational, suitable to the uses of the object and never stuck on. We must go back to the example of the savage. “The New Zealander or the South Sea Islander forms his war club or his paddle of the shape best adapted for use, and then carves out or cuts away the surface to ornament it.” A particularly bad example is *papier mâché*, which is stuck on or has things stuck on to it, when instead its “peculiar properties of strength and

lightness without needing any framing should be considered purely for themselves, and the designer must forget all other constructive forms.”

The same principles are to be applied to architecture. What is needed is a new style and this must inevitably result from an honest facing of the function of the building and the best materials available. “Had the ancients been acquainted with the use of cast iron and the principles of modern construction, how different would have been their architecture! Why, then, should we, possessing these advantages, throw aside a powerful arm to leave ourselves undefended?” “The great works of the age are the results of science only. I think we should endeavour to connect ourselves more closely with it to receive knowledge, and afford art: the use of cast iron in buildings is constantly applied with science, but never with art. We seem ashamed of the material employed: it must be cased, made to represent what it is not.”—(Owen Jones, 1835). Writing in 1852 Noel Humphries offers the same ideas: “Fifteen years ago I advocated strongly those views of architectural progress which are in favour of working out a national and original style, imbued with the true artistic spirit of the age, and I then alluded to a more copious use of glass and iron as likely, if employed with a true understanding of their qualities as building materials, to lead to originality of a striking character. Many of the aspirations I then conceived have since been realized in the construction of our noble railway stations; with their far stretching roofs, so strong and yet so slight; and their slender columns, so taper, and yet iron, so all-sufficient for their purpose. The Crystal Palace, too, has marked an advance in the right direction.” He also advocates the use of glazed earthenware to avoid the situation which “one cannot imagine without a shudder of sympathetic discomfort, of a family sleeping, dressing, eating, etc., within the translucent and fragile walls of a crystal home.” “I imagine a design carried out *ab ovo*, with reference to the especial qualities of the new material, which should be adapted in form and density, in a totally new and appropriate manner to its new purpose. I conceive a sparkling and brilliant, yet massive and durable, style of architecture growing out of the proper use of these materials, to which the history of art can afford no parallel.”

Why did these men, influential and successful, fail to create a new style, fail to unite art and engineering, fail to master the machine? Why was the Great Exhibition, so far as its contents were concerned, an end and not a beginning—and the building as well, in its own generation? Largely, of course, because of lack of genius. But then, how did it happen that from 1835 to 1850 men of average ability could see things in a way which seems to us today to be rational while their contemporaries of real genius like Pugin and Ruskin, for all their penetration, were in the main hopelessly astray? What were the social and intellectual conditions which made this possible?

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TWO AUSTRALIAN HOSPITALS



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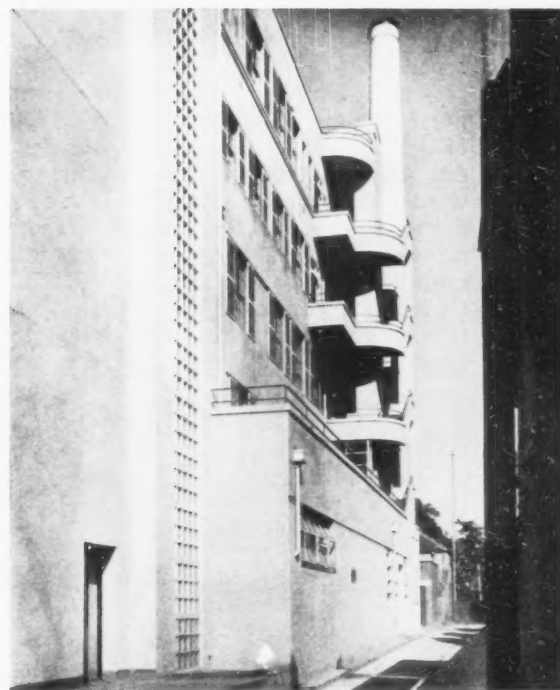
1, the north elevation and main entrance. The louvres in the tower are inlets to the plenum ventilation system. 2, the nurses' home from the hospital garden. 3, the west elevation and service entrance. In the foreground is the emergency ambulance entrance giving direct into a lift.

MERCY HOSPITAL, MELBOURNE

STEPHENSON AND
MELDRUM, ARCHITECTS



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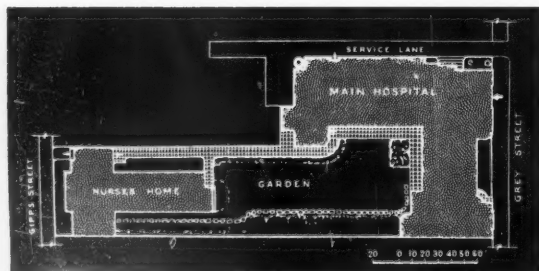


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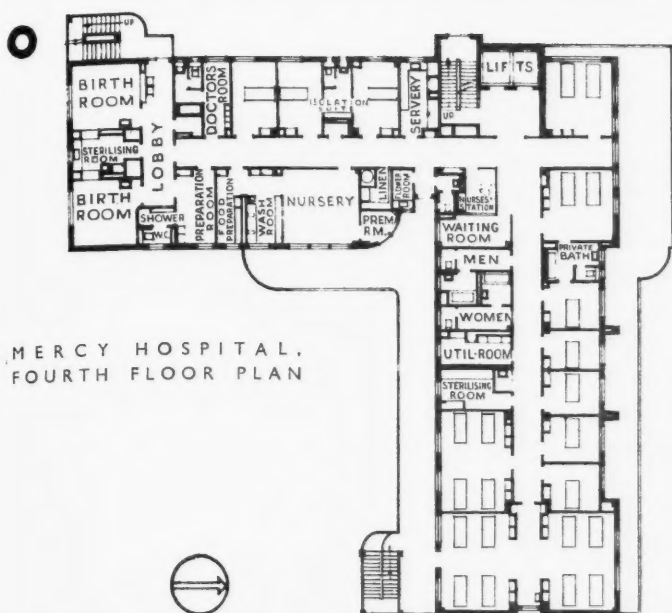
4, the cantilevered sun balconies on the north. 5, the lay-out plan, showing the garden separating the hospital proper from the nurses' home. 6, the entrance hall, with black and gold tiled floor and pale blue ceiling. 7, one of the nurse's stations on a ward floor, commanding a view of the corridor in both directions as well as of the lift and staircase hall. 8, the kitchen, looking towards the central servery. 9, a detail in one of the surgeon's "scrub-up" lobbies, looking through an observatory window into an operating theatre.



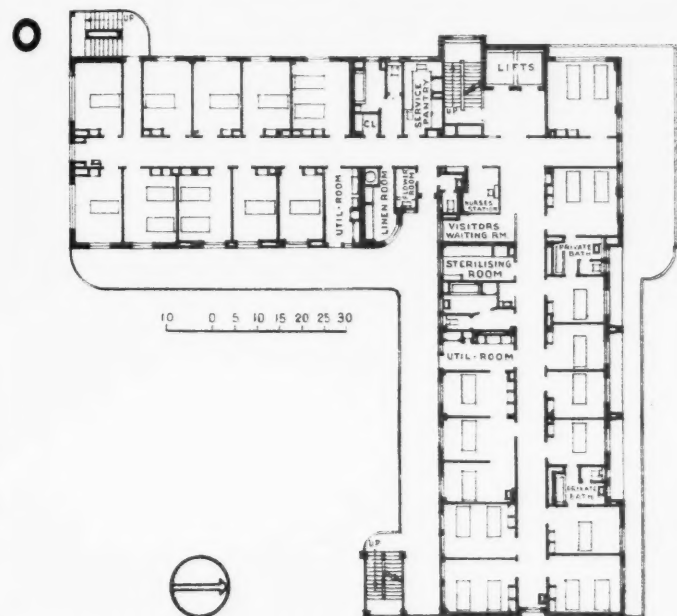
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9



MERCY HOSPITAL,
FOURTH FLOOR PLAN



MERCY HOSPITAL, SECOND FLOOR PLAN: A TYPICAL
WARD FLOOR

THE HOSPITALS IN DETAIL

In England it is often imagined that all Australia has a tropical climate, but actually in Victoria and the southern part of New South Wales it is rather less temperate than the French Riviera. For six to nine months of the year sunlight is courted and encouraged. Sydney is 500 miles north of Melbourne, and its summer is correspondingly longer and hotter, but both winter climates are such that central heating to public buildings is a necessity. In the height of the summer, shelter is needed from direct sunlight, and

hoods or balconies are placed on the north to break the heat from the high midday sun, and on the west window-shutters are used against the horizontal rays of the afternoon. In Melbourne the cold winter winds are south-westerlies, and in summer it is desirable to have a cool refuge out of doors from the hot and dusty northerly gales. In Sydney the north-westerlies in summer are the unpleasant winds. The different orientation of the two L-shaped buildings illustrated (one of which is in Sydney and the other in

Melbourne) is largely explained by this difference in the prevailing winds, and the aspects of the wards are governed by the attempt to get as much sunlight as possible together with a reasonable amount of sheltered balcony space. The Mercy Hospital is finished in a light-coloured cement rendering. Gloucester House is in pale cream brickwork, the balustrades being in white cement and the soffits of the balconies pale green. In the design no "national style" has been followed. Australia is poor in local idiom. Since the early Colonial work, Georgian in character, of which there is a little still to be seen in Sydney, there has been a complete break in the logical chain of tradition. The architect can refer back only to the familiar medley of late Victorian and early twentieth-century revivals, and if a national style is to emerge it will probably be closely related to modern European works.

THE MERCY HOSPITAL, MELBOURNE

Problem: The Sisters of Mercy decided to build a private hospital for medical, surgical and maternity cases. Their desire was that it should be centrally situated and be accessible to the greatest number of doctors who would use it. Accordingly, a fine site was chosen on high ground looking across park land to the east end of the city of Melbourne, where most of the specialists' consulting rooms are grouped. The capital available made it possible to budget for the construction of a hospital of 120 beds. To use the limited area of land to the best advantage, it was decided to incorporate all the services, with the exception of the Nurses' Home, in a single unit. The inclusion of a steam laundry is not an economical arrangement for such a small hospital, but the Sisters particularly wished to have this work under their own control, and have made it a central laundry depot for their other suburban hospital. A small chapel was required, and also a refectory for the Sisters, who themselves form about 25 per cent. of the nursing staff.

Plan: The placing of the L-shaped block on the site takes advantage of a lane for access to the service departments, and encloses the largest possible area of garden, at the far end of which stands the Nurses' Home. The ground floor of the main building is taken up with administrative and service departments, and the laundry and boiler house are in a basement. The four upper floors each contain a proportion of single, 2-bed and 4-bed wards, the south wing of the third and fourth floors being planned as operating and birth room suites respectively. On each floor the Nurses' Station in the internal angle commands a view of the corridor in both directions, and of the main lift and stair hall immediately opposite. The planning is based on the principle of central service

for food, linen, and sterile supplies. The kitchen lay-out includes a central servery, where trays are set up and dispatched by tray-lifts to the servery stations on each ward floor, from which they are distributed to the patients. The central sterilizing department is next to the operating suite on the third floor, and in addition to serving the theatres, prepares all the surgical dressings for use on all floors. The operating suite is isolated from the ward section and contains one minor and two major operating rooms with a sterilizing room between. The scrub-up lobby which disconnects the theatres from the ward corridors has a cross-draught and view windows through which the doctor scrubbing can watch the preparations in the operating room. Access from operating to sterilizing room is across polished metal counters, with plate-glass windows which can be lowered to ensure quiet for the surgeon. The birth rooms are similarly planned. In the nursery the babies may be seen through a view window in the corridor, a feature that protects the babies from disturbance and exposure to possible infection. Here, too, for the first time in Australia, babies are washed with hand-sprays, thermostatically controlled.

Construction: The building is of reinforced concrete in beam and slab construction with inner walls and partitions of terra-cotta blocks. The concrete cantilever balconies were new to Australia when used on this building. The housing of all the service departments in the main building necessitated many precautions against the transmission of sound. The machinery in the basement is fixed to independent concrete bases placed on cork insulating pads and isolated from the floor slab, and all the partitions are built with pads of insulating board between the terra-cotta and the concrete. Ducts formed vertically in the walls and horizontally between floor slabs and suspended ceilings carry all piping, wiring and ventilating tubes out of sight but easily accessible. There is a system of plenum and exhaust ventilation to the operating and birth rooms, and exhaust ventilation to the kitchens and service rooms. A refrigeration plant circulates brine to cool rooms and cool cupboards and supplies block ice for miscellaneous uses.

Equipment: Owing to the price of oil in Australia, it is not an economical fuel to use for supplying the needs of a hospital of 100 beds or more. Its advantages in an installation where space is limited lie in the cleanness of operation and the saving of bunkerage space, and it was considered that in this case the extra running cost was justified. Cooking is by gas ovens and grillers, with steam-jacketed stock-pots, low-pressure steam ovens and steam-heated bain-maries and hot tables. Electricity is used in running dish-washers, mixers, etc. The furnishings as

well as the interior decoration were carried out under the direction of the architects. Colours were freely experimented with, cool blues, greens and yellows being used in the north rooms, warm yellows and pinks in rooms receiving less sunlight, and all the corridor ceilings are a deep sky blue.

**GLOUCESTER HOUSE,
ROYAL PRINCE ALFRED
HOSPITAL, SYDNEY**

Problem: A large public hospital required a ward block for paying patients. The scheme is to repay the cost of building in a period of 25 years, and thereafter become a source of revenue to the hospital. Beds were to be provided for 160 patients, including a children's section of 9 beds. The block was to be served by boiler house, kitchens and operating theatres already existing in the Main Hospital. The site available was in the south-east corner of the hospital grounds beside the park lands of the University. The entrance had to be separate from that of the public hospital, with special reception rooms and administration offices.

Plan: The shape of the plan is similar to that of the Mercy Hospital, but one wing runs north towards the existing surgical block and the other east, with the greatest number of wards overlooking the gardens contained within the angle and the University grounds beyond. At third floor level a bridge connects the north wing with the Main Hospital's operating theatre section, and the ground floor is also bridged to form a passage for the food service. On the west front a long drive leads down to the main entrance, with a separate ambulance entrance out of sight of the main doors. The lifts, stair well and nurses' stations are placed in the angle of the building very much as they are in the Mercy Hospital. A consulting room for doctors on each floor was found to be a desirable addition to the planning of the ward floors. Part of the lower ground floor is used for mechanical equipment such as radiation calorifiers, air-conditioning and refrigeration plant and electrical switch room, in addition to a central sterilizing department, a central linen store and a small dispensary. The sharp fall of the land to the rear allows the remainder of the floor to have patients' rooms opening on to the lawns, and the eastern end is planned as a special children's section with independent bath and service rooms and two isolation cubicles. The three upper floors are planned on very similar lines, with single, 2-bed and 4-bed wards, the top floor, however, having a larger proportion of single rooms with bathrooms opening from them. The service rooms, treatment rooms and many of the bathrooms are grouped on the south elevation so that the three sunny aspects are given up almost entirely

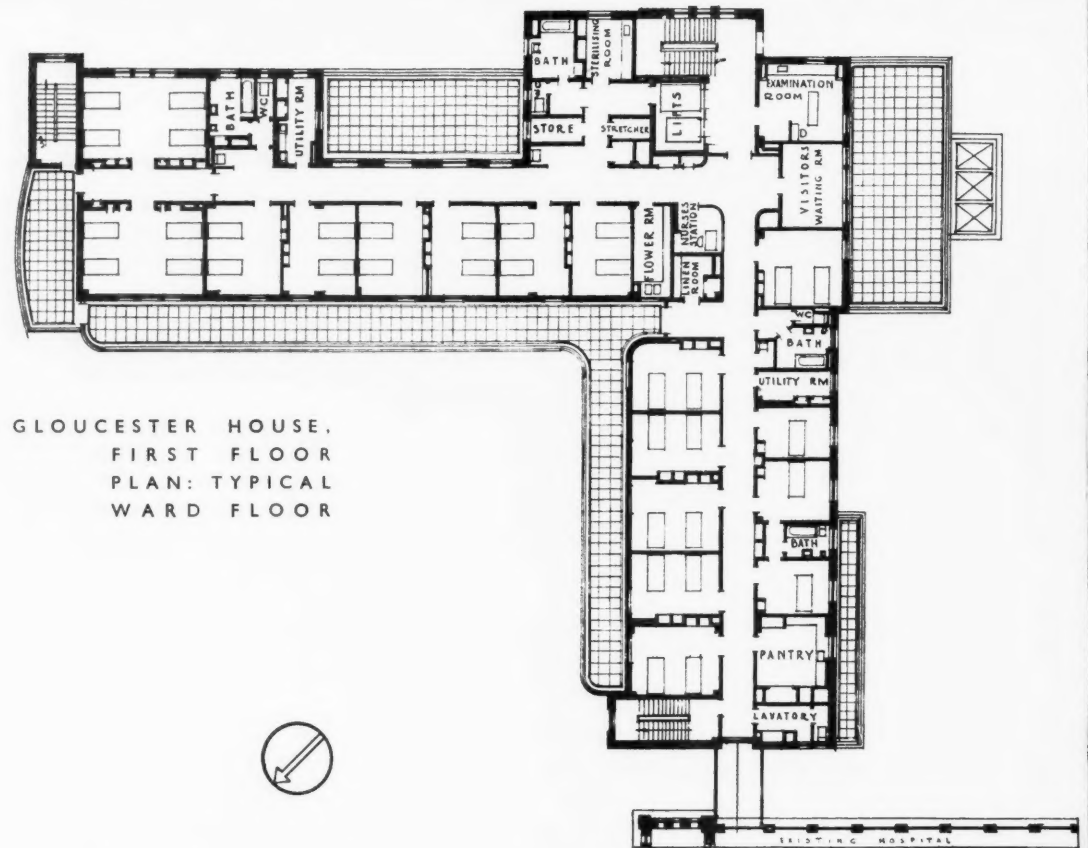
to patients. Flower rooms and linen rooms and a chute for soiled linen are close to the nurses' station. One of the lifts has a second set of doors into a service lobby behind the lift well, so that the hospital service traffic may be kept entirely apart from the main lift hall. On the flat roof a loggia provides shelter for convalescent patients, with a magnificent view to the north-east towards Sydney Harbour.

Construction: Reinforced concrete has been used throughout with hollow terra-cotta block floors. The brick outer walls are non-structural. A main pipe duct runs from top to bottom of the building beside the lift well, with subsidiary ducts in ceilings and double walls. The shaft carrying the two lifts and the machinery above them is structurally independent of the rest of the building, so that no noise or vibration can be transmitted.

Equipment: On each floor three special rooms have air-conditioning units, and will be used for cases requiring the maintenance of an even temperature, such as post-operative patients and cases of fever. The reception room and matron's office also have this equipment. The rest of the hospital has hot-water radiation throughout, and mechanical and exhaust ventilation to all service rooms. On the west front all the windows are protected by metal sun blinds which break the glare of the afternoon sun while allowing free passage of air, and which are

operated from inside the room. Over each patient's bed is a reading lamp, a plug for doctors' instruments, a point for a telephone and a radio outlet. The light fixture over the bed-head is a combination of two units. One lights the whole room by reflection from the ceiling, and the other, whose switch is within easy reach of the patient, throws down a diffused direct light over the pillow. There is no ceiling light to glare in the eyes of the recumbent patient. The patient has a special radio transmitter encased in a pillow to place beneath his head, or he may have a low-volume speaker near his bed, and has a

hand control, which gives him the choice of three stations which are received simultaneously at the main radio installation. Each floor has a dominant colour note emphasized mainly in the ceilings and curtains, that of the ground floor being primrose, and the upper floors being peach, green and pale sky-blue respectively. The floors are of heavy linoleum in a colour blend of a general gold tone, and are set flush with terrazzo margins which curve upwards to form a skirting. The beds were specially designed to be adjustable to any position required, and are lacquered in soft colours to match the scheme of each floor.





11

10 (opposite), the solaria, with sliding metal windows. 11, view from the north, with the side of the glazed solaria on the extreme left. The brickwork is a warm cream colour and the balcony soffits pale green. 12, the main entrance. The metal-louvred blinds can be let down against the glare of the afternoon sun. 13, a four-bed ward. The walls are pale primrose, the ceilings pale blue and the curtains blue and cream.

GLOUCESTER HOUSE, SYDNEY

STEPHENSON AND
MELDRUM, ARCHITECTS



12



13



1

*A. AND E. ROTH AND
MARCEL BREUER,
ARCHITECTS (LONDON)*

Two identical blocks of flats, placed diagonally on a long, narrow site and later to be supplemented by a third (see lay-out plan, page 58). 1, the two blocks, showing in each case the main façade with open balconies facing south. 2, from the north-east, showing living- and bedroom windows overlooking a park. The slope of the site allows of a lower ground floor, which the rest of the building overhangs (on the left of the photograph) containing entrance lobby, garage and service rooms. 3, the lower end, looking into the entrance and garage doors. 4, a corner detail of one of the blocks.



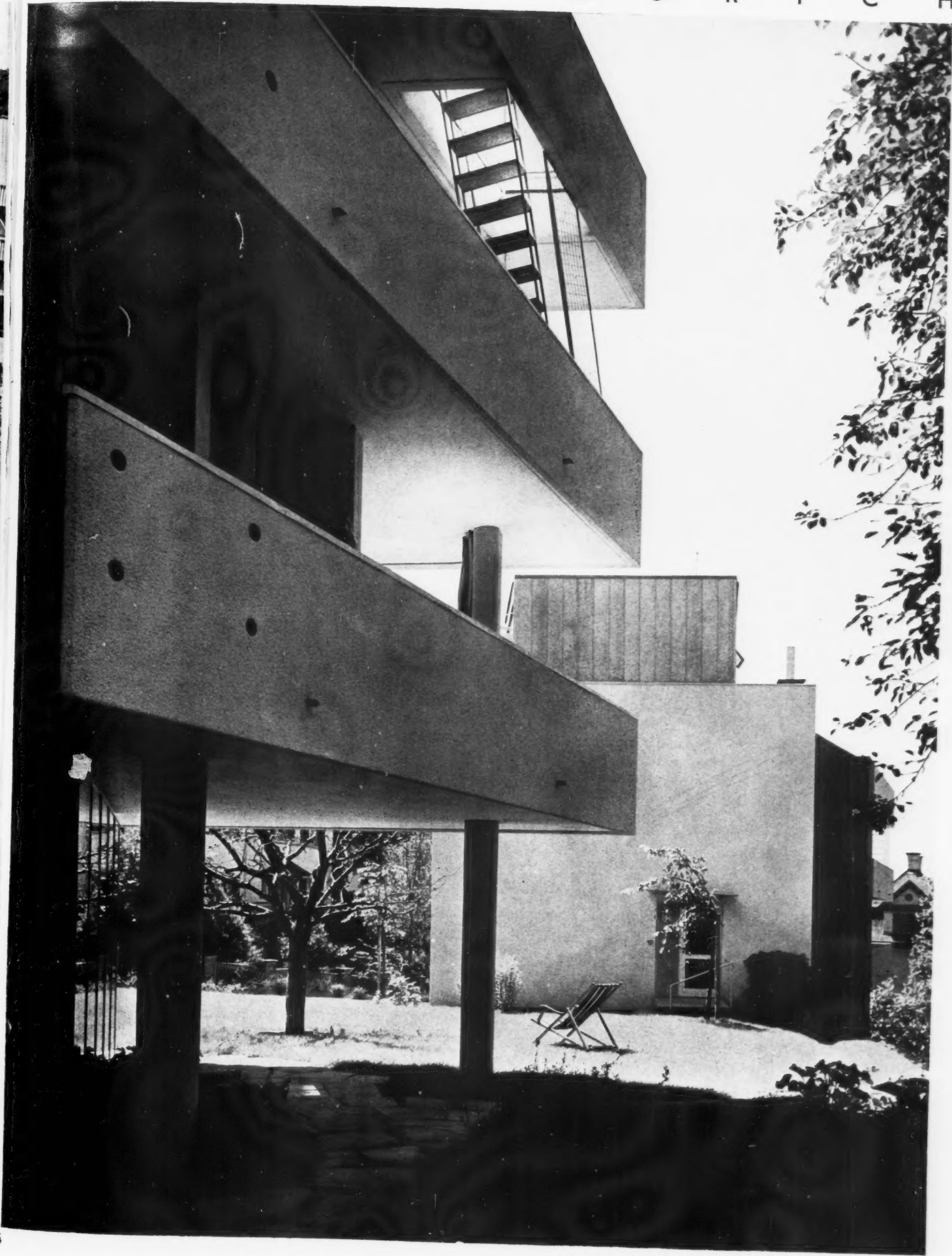
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D E R T A L , Z U R I C H



F L A T S A T D O L D E R T A L ,



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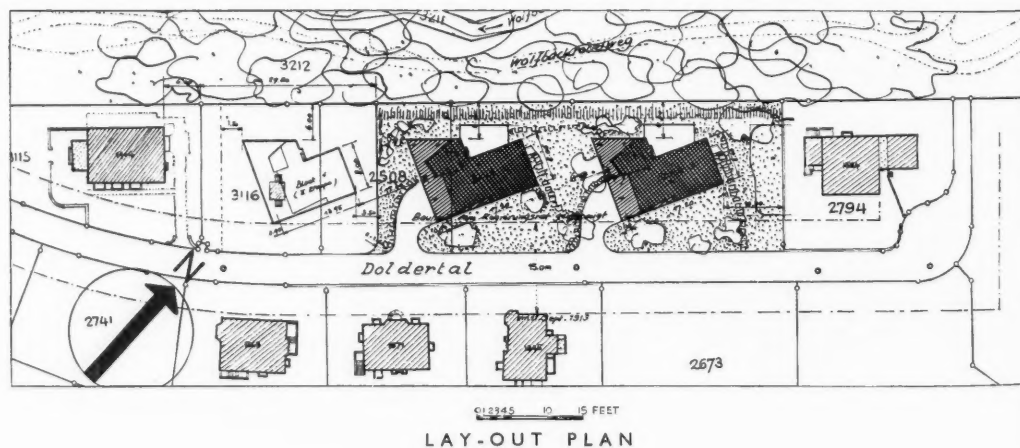


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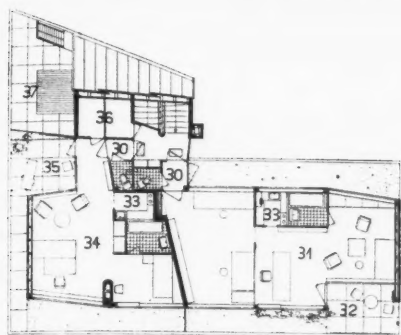
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Above the lower ground floor, containing garages, etc., and a large glass-enclosed entrance-vestibule, 5, are two floors of flats and a top floor containing one larger and one smaller studio flat. 6, the staircase. 7, a living room showing the open fire-place. The rooms are well planned in conjunction with open terraces and the entrances and outlook designed to have the effect of private houses rather than a shared apartment block. It will be seen in the lay-out plan that no façade faces directly on to another one. Living rooms face the view, away from the street; stairs and kitchens are grouped so that they can be isolated for sound. Construction is steel frame with curtain walls supported on the floors. Details of the wall and window construction are shown in the drawing opposite.

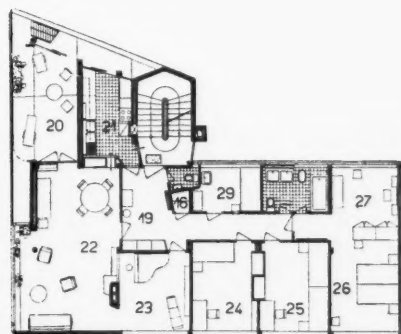


LAY-OUT PLAN

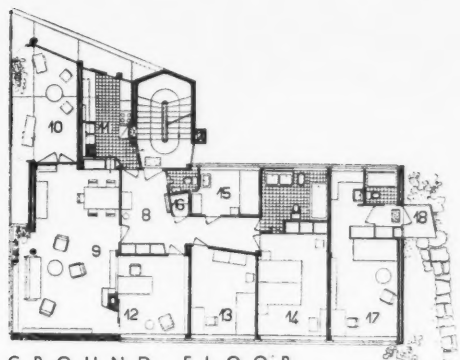
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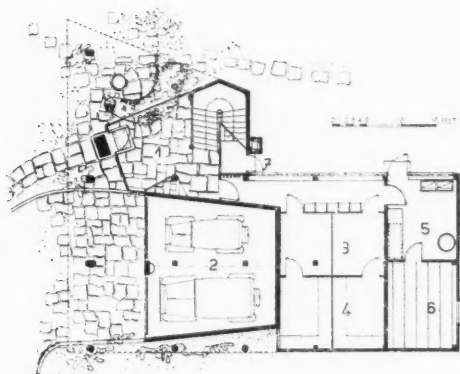
TOP FLOOR



FIRST FLOOR



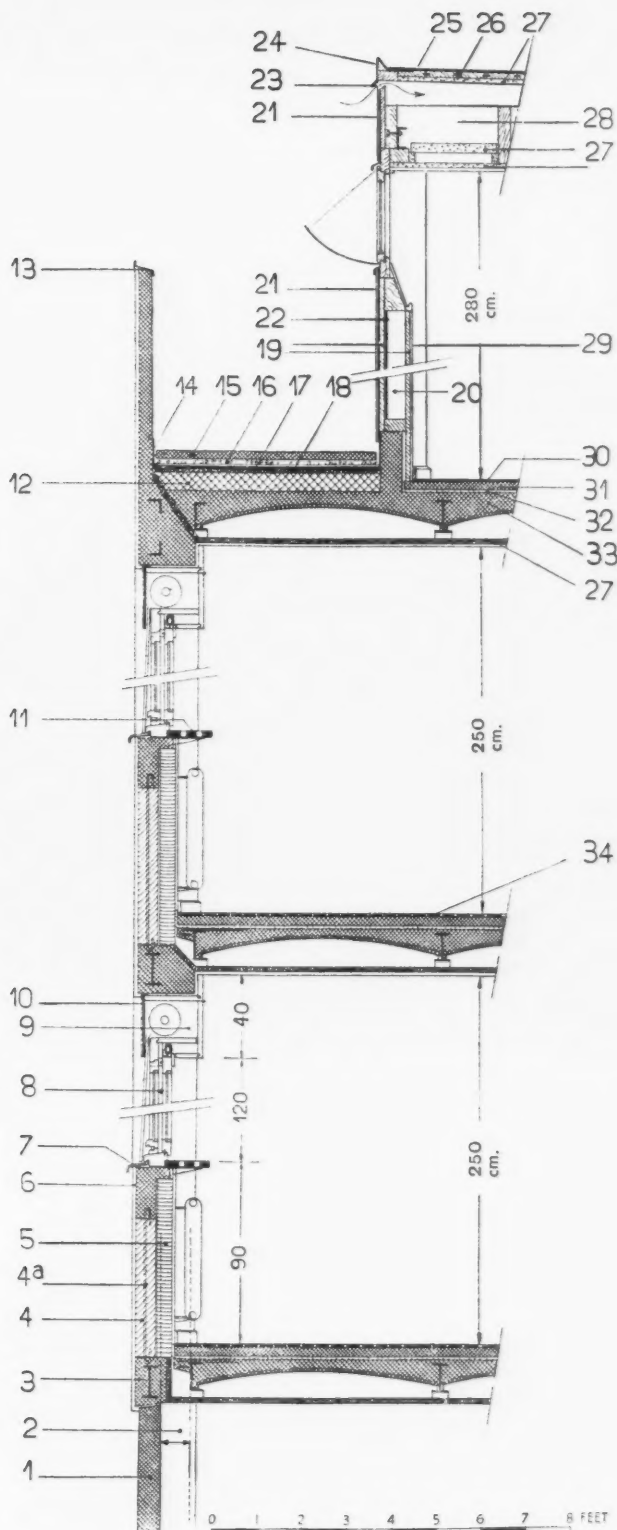
GROUND FLOOR



LOWER GROUND FLOOR

KEY TO PLANS

Lower Ground Floor	9. Living room	18. Porch	29. Servant's room
1. Glazed entrance lobby	10. Terrace with curtain for sun bathing	19. Hall	30. Foyer
2. Garage	11. Kitchen	20. Sun terrace	31. Studio
3. 4. Storage	12. Library	21. Kitchen	32. Terrace
5. Laundry	13, 14. Bedrooms	22. Living room	33. Kitchenette
6. Drying	15. Bath	23. Music room	34. Lounge
7. Service entrance	16. Linen	24-26. Bedrooms	35. Terrace
Ground Floor	17. Bedroom	27. Dressing room	36. Storage
8. Hall			37. Sun terrace



KEY TO DETAIL SECTION

1. Foundation wall	17. Building paper and gravel
2. Steel columns	18. Cork insulation, 2 in.
3. Girder	19. Sheathing
4. Hollow tile, 4 ins.	20. Air space
4a. Reinforcement	21. Spun glass insulation
5. "Heraklith"	22. Facing
6. Stucco	23. Ventilation
7. Zinc-covered cill	24. Copper cap
8. Sliding windows	25. Tar and gravel
9. Louvred awning	26. Sheathing
10. Plate cover	27. Slab roof
11. Window cill (perforated slate)	28. Air space
12. Concrete	29. Birch veneer
13. Copper	30. Linoleum
14. Flashing	31. Concrete, 2 ins. floating
15. Concrete, 2 ins.	32. Cork
16. Sand and gravel	33. Aerated concrete
	34. Wood flooring

The one-storey house illustrated first needs some special explanation of its peculiarly personal quality. First, it is built by the architect for his own occupation; secondly, it is not designed as a permanent residence but as a summer-time or week-end retreat. This positive statement apart, the spirit in which it is designed is best indicated by the following series of definitions, which have been composed in their negative form to differentiate the architect's conception of the house from the many current conceptions of modern architecture which are too often grouped together under the general heading—the modern idea.

It is not a "Modern House," a "Shelter," which, according to professors, should be self obliterating, unselfconscious and insignificant in its hygienic anonymity; a thing of which one can only say that it is made of reinforced concrete.

It is not a direct or functional result of an haphazard choice of site and of materials; or of the digestive or hygienic customs of its inhabitants; in fact, it is not a sort of mixture of philosophy, gastronomy and statics.

It does not pretend that it is nothing but the last modest, silent, and objective link in any chain of specifically nordic or English tradition.

It does not try to show that the plan was dictated by any trigonometry of the lines of kitchen circulation, or by angry attempts to trap sunlight into some dust-proof corner, or by the standard length of reinforcing rods.

It does not try to prove that its design grew "naturally" from the given conditions like an ordinary pumpkin, Victoria Regia, or deep sea fish.

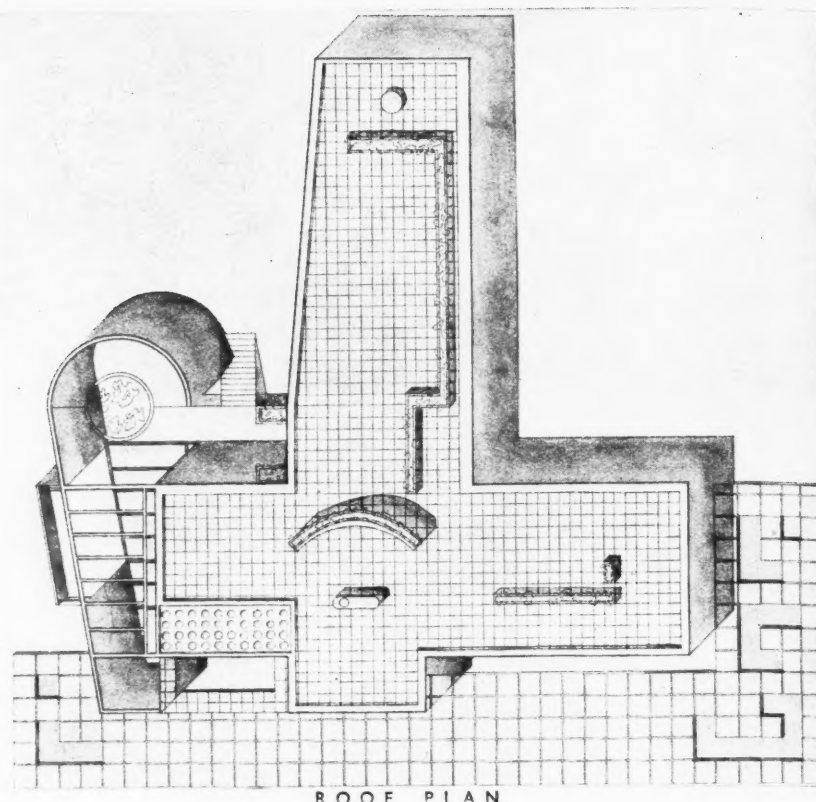
It does not pretend that its plinth, which so effortlessly raises the house by a foot all round, refusing the walls a damp contact with the earth, is conceived for reasons of statics; although it would be quite easy to explain it on those grounds, as soon as one sees that the cantilevering of the slab reduces the positive moment in the middle of the span.

It does not pretend that the trellis of prefabricated reinforced concrete elements which supports the roof, filled in with thermolux, transparent glass or heating panels, is a rational or logical wall construction. This in spite of the fact that the horizontal elements of the trellis reduce the height of the verticals and so reduce the risk of bending, allowing the thickness of the supports to be decreased. A wall obtained in this way is not necessarily the most economic, logical and rational solution. As a matter of fact, other walls in the same house are monolithically constructed of 4 in. reinforced concrete insulated with 2 ins. of cork, with plaster on the inside, where a solid effect, worthy of a family portrait, was wanted.

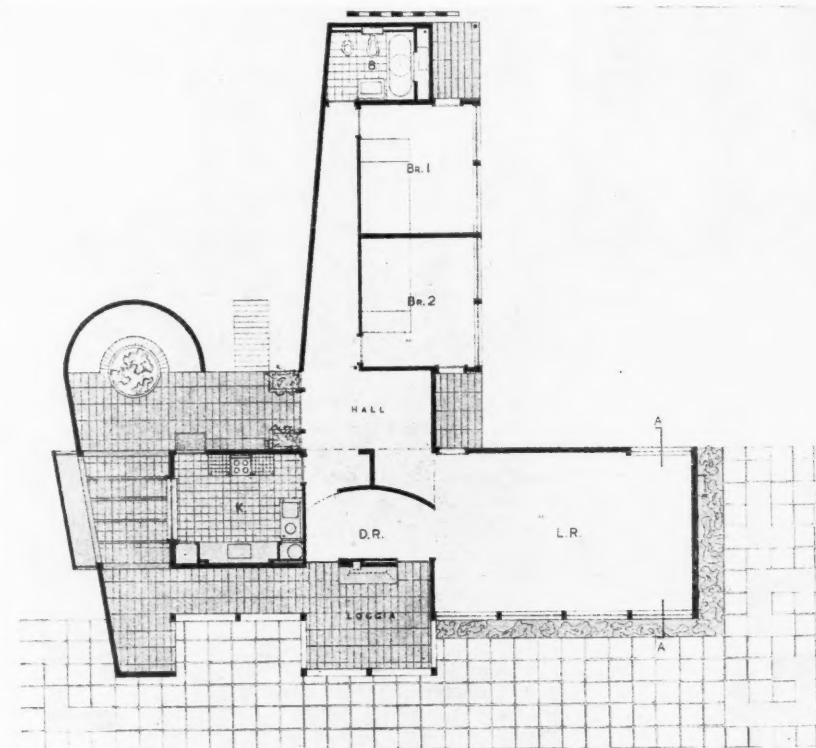
The flat roof is not a sign of the exhibitionist tendencies of nudist inhabitants; the bathroom is not top-lit in order that the bather may be more jealously guarded; the cornices are not specially designed for the local cats or for sleepwalkers; and the dish-washer in the kitchen has never been in working order.

On the contrary, the designer admits that there is, on the walls of the W.C., a collection of cold-blooded tropical butterflies; while the bedspreads have little bells sewn on to them to brighten the dreams of the occupants.

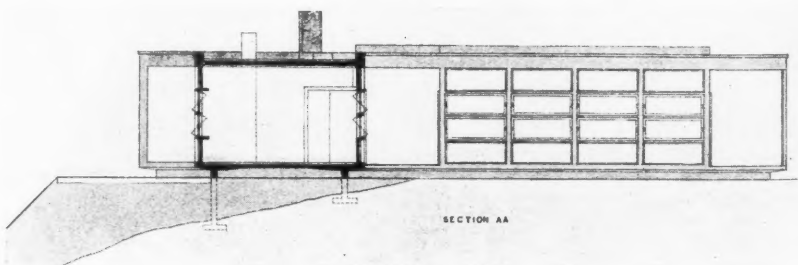
The designer admits also that he has not capitulated to the accidents of a site which was forced on him; he excavated eight hundred cubic yards of dazzling chalk full of megalithic fossils, to make a flat lawn and a flat house—where any Czech would have made a house in steps with a roof garden.



ROOF PLAN



FLOOR PLAN



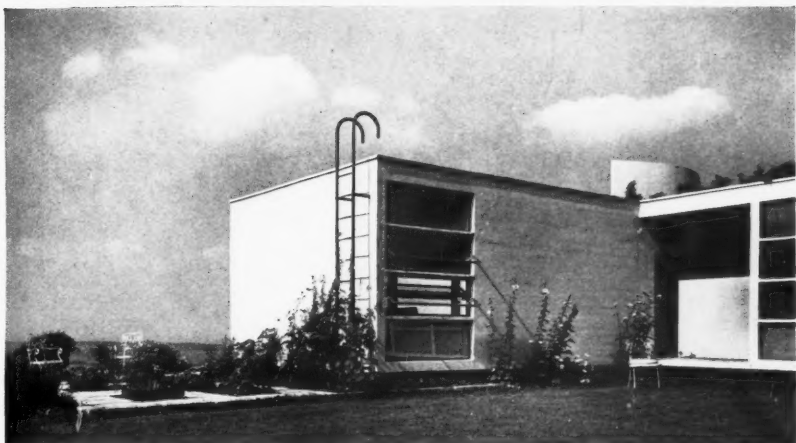
SECTION AA

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W H I P S N A D E



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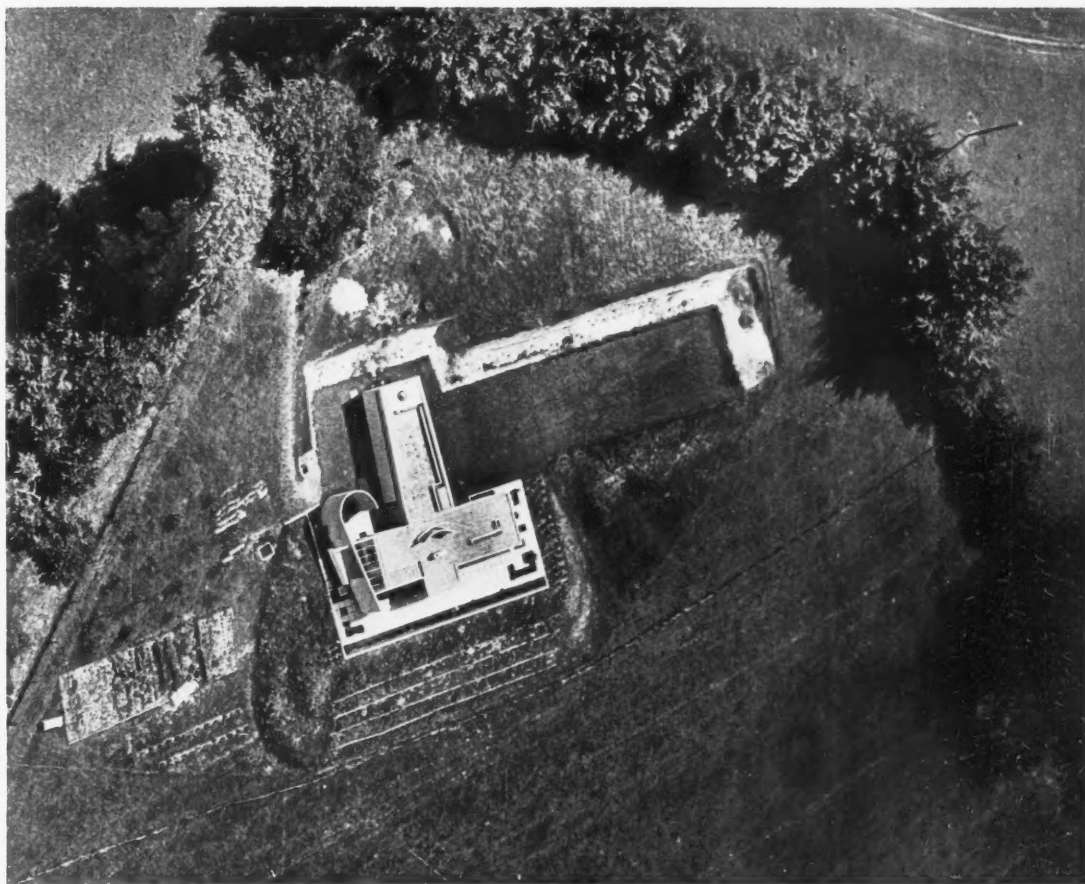
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LUBETKIN AND
TECTON, ARCHITECTS



3

The houses are built on a western slope of the Chilterns, with a magnificent unobstructed view across the valley. Owing to the continuous fall of the ground, it was necessary to excavate a terrace for the first house (here illustrated) and garden, and to bank up this terrace by placing the excavated earth in front. The orientation was dictated more by the view and the position of hedges and trees than by the sun. Each bedroom has its own sleeping porch, and the house is connected to the garden by semi-open terraces for open-air meals, etc. In these terraces, flower-beds and a fish-pond are placed. The roof is flat, covered with pumice-concrete tiles, and screens and flower-boxes are placed on it. The loggias are paved with terra-cotta tiles. The outside is painted parchment-colour, with dead white reveals, cobalt blue on the inside walls and ceilings of the loggias, and pompeian red flower-boxes. The terrace in front of the house is of coloured cement, with flower-beds cut out. 1, a view from the back, over the larger house to the landscape beyond. 2, the external corner of the living room, with one of the sleeping porches on the right. 3, a detail in the entrance court. 4, an air view.



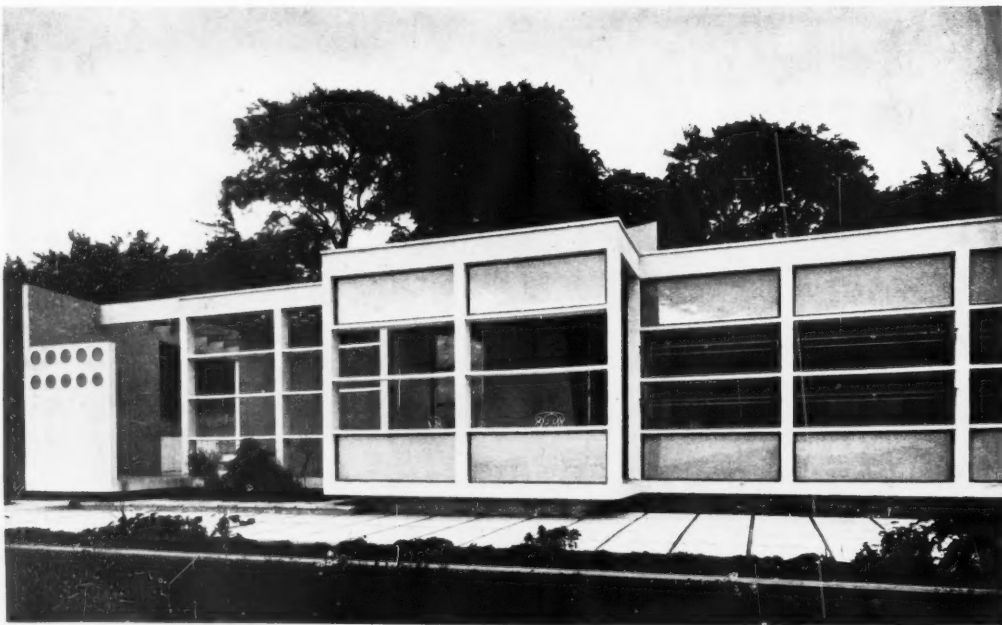
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Some of the exterior walls are constructed in 4 in. reinforced concrete, insulated with cork. Others are built in prefabricated vertical and horizontal units, which support the roof slab, and are filled in with steel pivot-hung windows, and with panels of

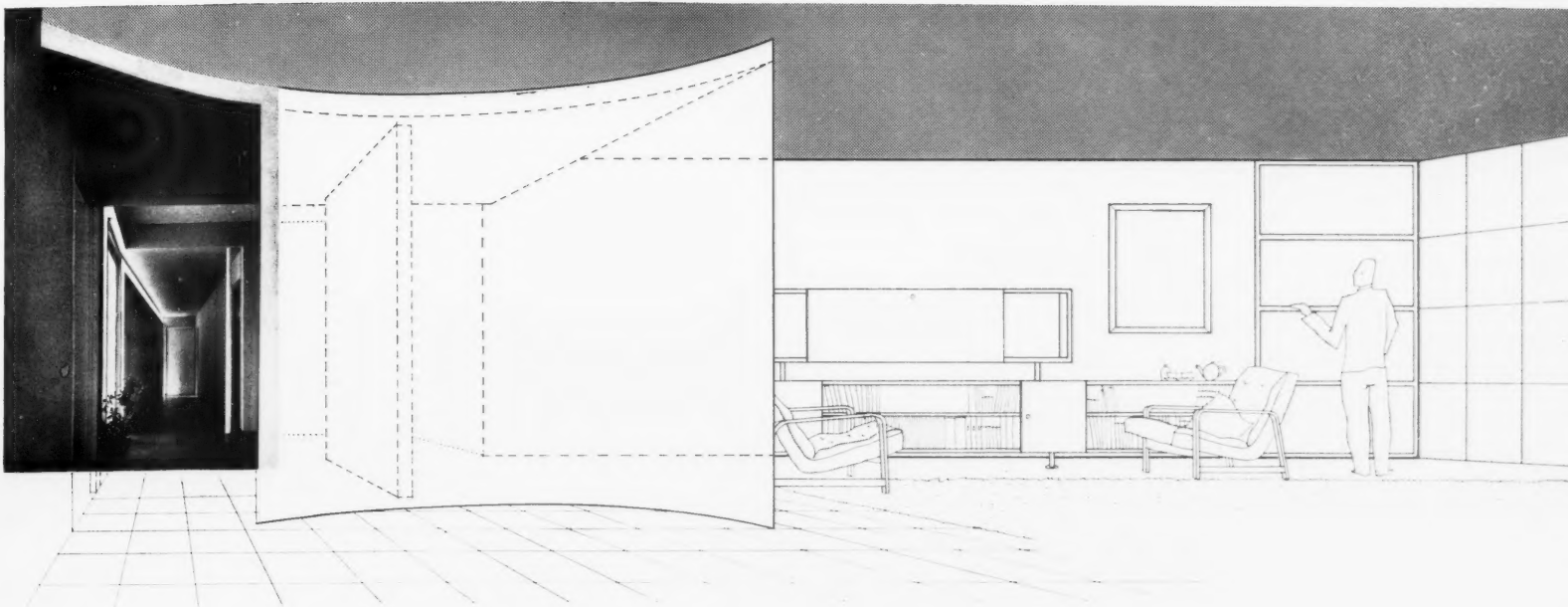
insulating glass in the top and bottom spaces. Behind the fixed panels are removable electric panel heaters. From the inside the strong concrete horizontals and verticals, together with the projecting cill and soffit, give scale to a landscape which



6



W H I P S N A D E

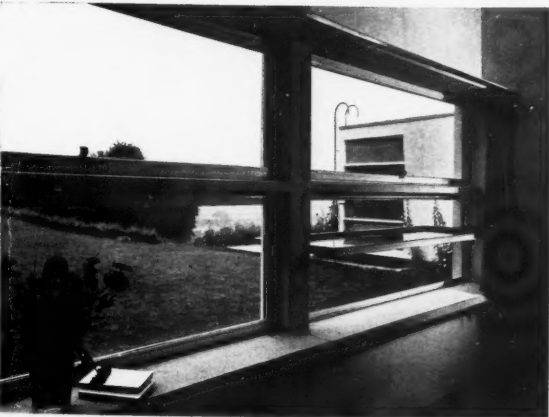


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might otherwise be overpowering. The loggia in front of the dining room has an open-air fire-place. 5, a view over house and landscape from the rising ground behind. 6, the front elevation: living room and loggia. 7, looking down the tapering corridor, showing also the curved screen wall and the long wall of the living room. 8, the other, open, side of the living room. 9, looking through one of the bedroom windows. 10, the entrance hall from the living room, showing again the curved screen wall with its false ceiling.



8



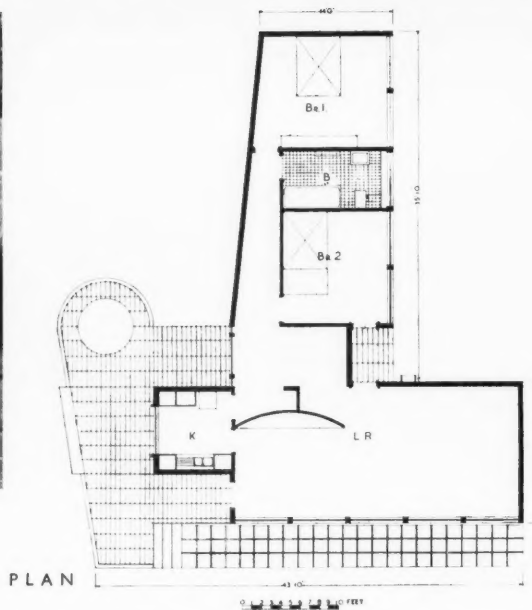
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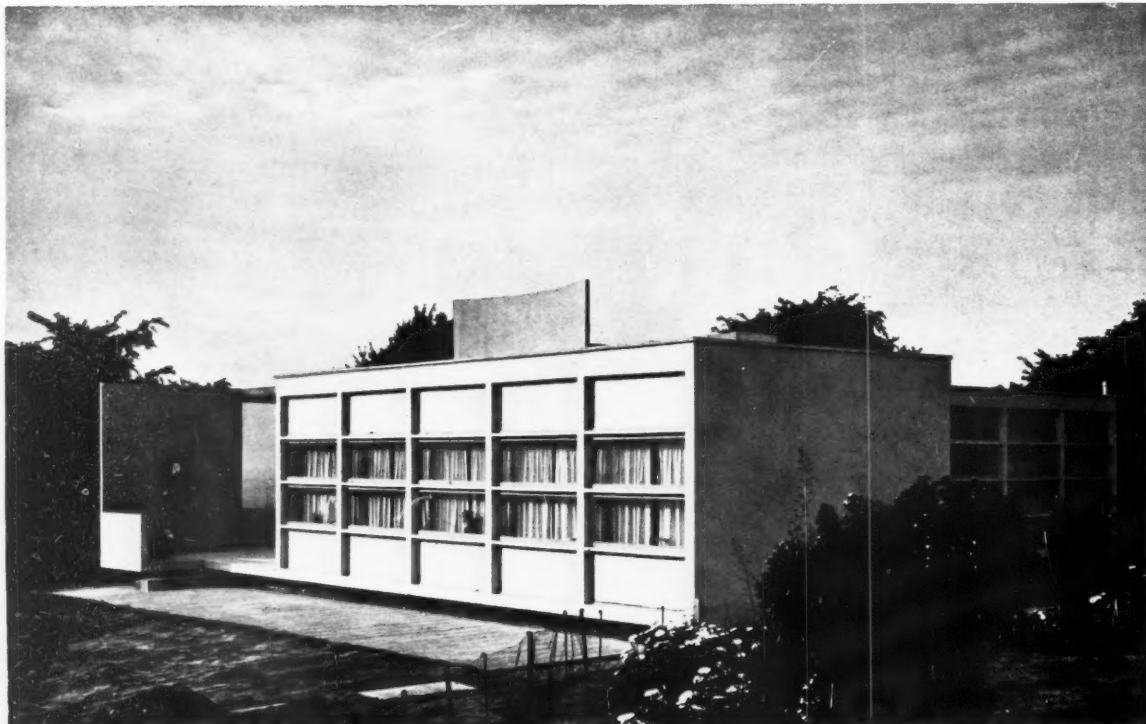
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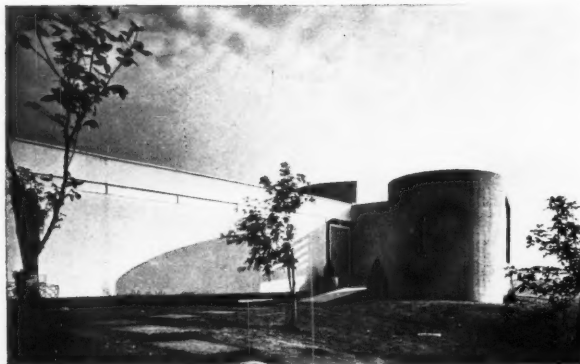


PLAN



12

To the east of the first is a smaller bungalow, in which the plan has been slightly modified to meet the individual requirements of the client. Both bungalows were built at the same time, so as to reduce the cost of the prefabricated units and shuttering. In this case less outside terrace is provided, but the living room is larger. 11, an air view, showing both bungalows; the smaller one is the farthest away. 12, its front elevation. 13, the side, showing the entrance.



13



The Crystal Palace as structure and precedent

By P. Morton Shand

It is two months since the Crystal Palace was burnt down, and during those two months a great deal has been written about it in the way of history and reminiscence. But there still remains the definitive placing of the building in architectural history, and the analysis of its structural significance. This, it is clear, had to be done before it could be said that the documentation of the building was complete. Other writers have stressed its importance as part of the Victorian scene. In this article Mr. Morton Shand regards it as an architectural conception and as a structure; one whose antecedents can be traced and whose descendants populate the modern world of architecture.

R e a c t i o n s

ALL those who rely on the daily papers for authoritative judgment must have felt comfortably reassured that no more had perished in the burning down of the Crystal Palace than a sentimentally interesting relic of the Victorian Age, or the rather tawdry temple of Brock's Benefits and Handel Festivals. None of them as much as hinted that the destruction of the real Albert Memorial would be as great a loss for the world at large as for our own intimate England. We had had the thrill of a record London fire, with record crowds to watch this colossal crinolined bird-cage collapse; a local "sensation" somewhat exceeding our daily journalistic dram. That was all!

It may as well be said quite bluntly and baldly that for once the Press of this country failed signally in its duty towards the public, for it showed itself signally ignorant of what the Crystal Palace stood for in terms of our twentieth-century civilization: not a fossilized museum piece, or a faded fashion-plate, but a precept inspiring as the Parthenon, an exemplar vital as the Pont du Gard. Among all the amusing, versatile and well-informed pens who wrote about its destruction, not one appeared to realize that as an "historic monument" of its own age the Crystal Palace was as representative and important as Stonehenge, Ely Cathedral, or the Senate House at Cambridge are of theirs; and therefore of as great cultural importance to the country. All great epochs have expressed the civilizations they achieved in monuments that were the embodiments of their own *Zeitgeists*. Whether we like it or not, the Victorian era was a great epoch—the greatest engineering age in all history. Its monuments were not the work of architects—for there were no Victorian architects, only imitative façade-matchers, eclectic style-blenders, and inept menders of antiques—but of engineers and what were termed "hard-headed men of affairs." Being "works of a strictly utilitarian nature"

which continue to fulfil the purpose they were designed for, the Britannia Tubular Bridge, the Saltash Viaduct and the Forth Bridge still remain. The one consummate example of nineteenth-century structural technique that was a building, and the first in the whole world to be constructed of mass-produced standardized parts, has just been razed to the ground. For the architectural historian of the future its disappearance will leave a greater gap than if its fate had befallen Stonehenge, Ely or Cambridge. Any of these documents in stone would be piously rebuilt, though all three have survived long enough for their contribution to be accurately assessed; whereas the Crystal Palace having failed to reach a centenary can obviously have no claims to restoration. Had it been either built in 1651, or destroyed in 2036, the Press would have been quick to appreciate the nation's loss.

The Crystal Palace (Douglas Jerrold's nickname has stuck to it in all languages) was not the design of a trained engineer, but of a half-amateur, half-professional jack of several trades who happened to be the most expert practical horticulturist of the first generation to apply science to the forcing of tropical plants. Joseph Paxton (1803–1865) typified the bold new men of an age of unparalleled industrial expansion which was bringing about far-reaching transformations in the traditional crafts by the use of mechanical power to distribute materials and fabricate commodities. "God bless my dearest Albert, the author of this Peace Festival; God bless my dearest country, which has shown itself so great to-day" were the proud but simple words with which Queen Victoria closed her diary for the day on which she opened Paxton's "glass case." May 1st, 1851, was the first date in the New Architecture. That architecture is international, like the Great Exhibition which its first prototype housed, and like the Classic and Gothic styles before it; but it was born in England, the legitimate offspring of Matthew Arnold's Philistine Victorian industrialism. To England it has now returned,

doubtless to become as essentially English as were English perpendicular and the Georgian domestic vernacular.

What the Crystal Palace stood for as a milestone in modern civilization has been succinctly stated by Dr. Siegfried Giedion, the leading authority on the historical evolution of nineteenth-century building construction, in a memorial article published in the *Neue Zürcher Zeitung* of December 2nd:

"The Crystal Palace was the realization of a new conception of building for which there was no precedent. It was also the first large building constructed of glass, iron, and timber based on a framework of cast- and wrought-iron girders accurately riveted together. To my knowledge the possibilities dormant in the modern civilization we have created have never since been so clearly expressed. It was recognized at the time that this combination of glass, wood and iron—which incidentally resulted in an admirably practical form of exhibition technique—had evoked a new kind of imagination which sprang directly from the spirit of the age. Only thus can we explain the confident anticipation of contemporaries (which time has justified in essentials) that 'the Crystal Palace is a revolution in architecture from which a new style will date.'"

There were three immediate repercussions to the opening of the Great Exhibition which offer a pregnant contrast to what passes for educated opinion in our own day:

"The building encountered no opposition and the impression it produced on those who saw it was one of such romantic beauty that reproductions of it were soon hanging on the cottage walls of remote German villages. In contemplating the first great building which was not of solid masonry construction, spectators were not slow to realize that here the standards by which architecture had hitherto been judged no longer held good."

This is how Lothar Bucher, who later became Bismarck's right-hand man in the Wilhelmstrasse, but was then a political exile in London, describes the Crystal Palace in a volume* published in Frankfurt the same year:

"We see a delicate network of lines which gives the spectator no idea of its actual size or its distance from himself. The side walls are too far apart to be embraced in a single glance. Instead of moving from the wall at one end to that at the other, the eye sweeps along an unending perspective which fades into the horizon. We cannot tell if this structure towers a hundred or a thousand feet above us, or if the roof is a flat platform or built up from a succession of

ridges, for there is no play of shadows to enable our optic nerves to gauge their measure. If we let our gaze travel downwards it encounters the blue-painted lattice beams. At first these only occur at wide intervals; then they range closer and closer together till they are interrupted by a dazzling band of light, the transept, which dissolves into a distant background where all materiality merges into atmosphere. I had the impression—an impression that grew stronger the longer I looked—that the bold materials employed in this architecture were completely resolved into colour. The building is not adorned by colour, but built up with colour. To say that the spectacle of this translucent transept is incomparable and fairylike is the soberest understatement. It is like the fragment of a midsummer night's dream seen in the clear light of day."

The Prince Consort's first biographer wrote more staidly, but in very much the same strain:

"The shock of delighted surprise which every one felt on first entering the great transept of Paxton's building was a sensation as novel as it was deep. Its vastness was measured by the huge elms, two of the giants of the park, which rose far into the air with all their wealth of foliage, as free and unconfined as if there were nothing between them and the open sky. . . . One general effect of beauty had been produced by the infinitely varied work of the thousands who had separately co-operated towards this marvellous display, and the structure in which it was set, by its graceful lines and the free play of light which it admitted, seemed to fulfil every condition that could be desired for setting off the treasures thus brought together."

That Thackeray should have hailed it with delight is perhaps not altogether surprising, for Thackeray was at bottom a Regency buck, if a primly reformed one. Still his "May-Day Ode" is lyrical enough to be read in harness with Le Corbusier's moving homage to Paxton, printed at the end of this article. It will be observed that their vocabularies largely coincide:

" . . . A blazing arch of lucid glass
Leaps like a fountain from the grass
To meet the sun.
 . . . And here are lines of bright arcade
In order raised!
 . . . A rare pavilion, such as man
Saw never, since mankind began,
And built and glazed!"

Nor was the most eminent survivor of the eighteenth century in any way outraged. The Iron Duke could spot the right man for a job when he saw him. "I knew it would be all right as soon as I heard you had got it," he wrote to

Paxton. Dickens was essentially a Victorian, yet he was gripped by the romance of the vast organization and rapid calculations involved:

"Two parties in London, relying on the accuracy and goodwill of a single ironmaster,* the owners of a single glassworks in Birmingham and of one master-carpenter in London, bound themselves for a certain sum of money and in the course of some months to cover eighteen acres of ground with a building upwards of a third of a mile long: 1,851 ft. (the exact date of the year) long, and some 450 ft. broad." (*Household Words*.)

While the working drawings were still very far from complete specifications for much of the iron work had been settled, and tests were being made with the various types of girders and trusses provisionally selected. To what extent the modifications to Paxton's original design due to "Mr. Barry's refined perception of form and proportion" contributed any æsthetic refinement is doubtful. All we know is that they involved the hurried preparation of an entirely new set of general drawings which delayed the acceptance of Fox, Henderson & Co.'s tender.

It is often said that Paxton's plans (which had been drafted by his ordinary assistants in the Chatsworth estate office) were overhauled and improved by architects, engineers and contractors. This is doubtless true of details, but certainly to no greater extent than of any major work by any leading English architect today. The fact remains that Paxton had had plenty of practical experience of framed construction with prefabricated units, which could not be claimed for anyone else then living.

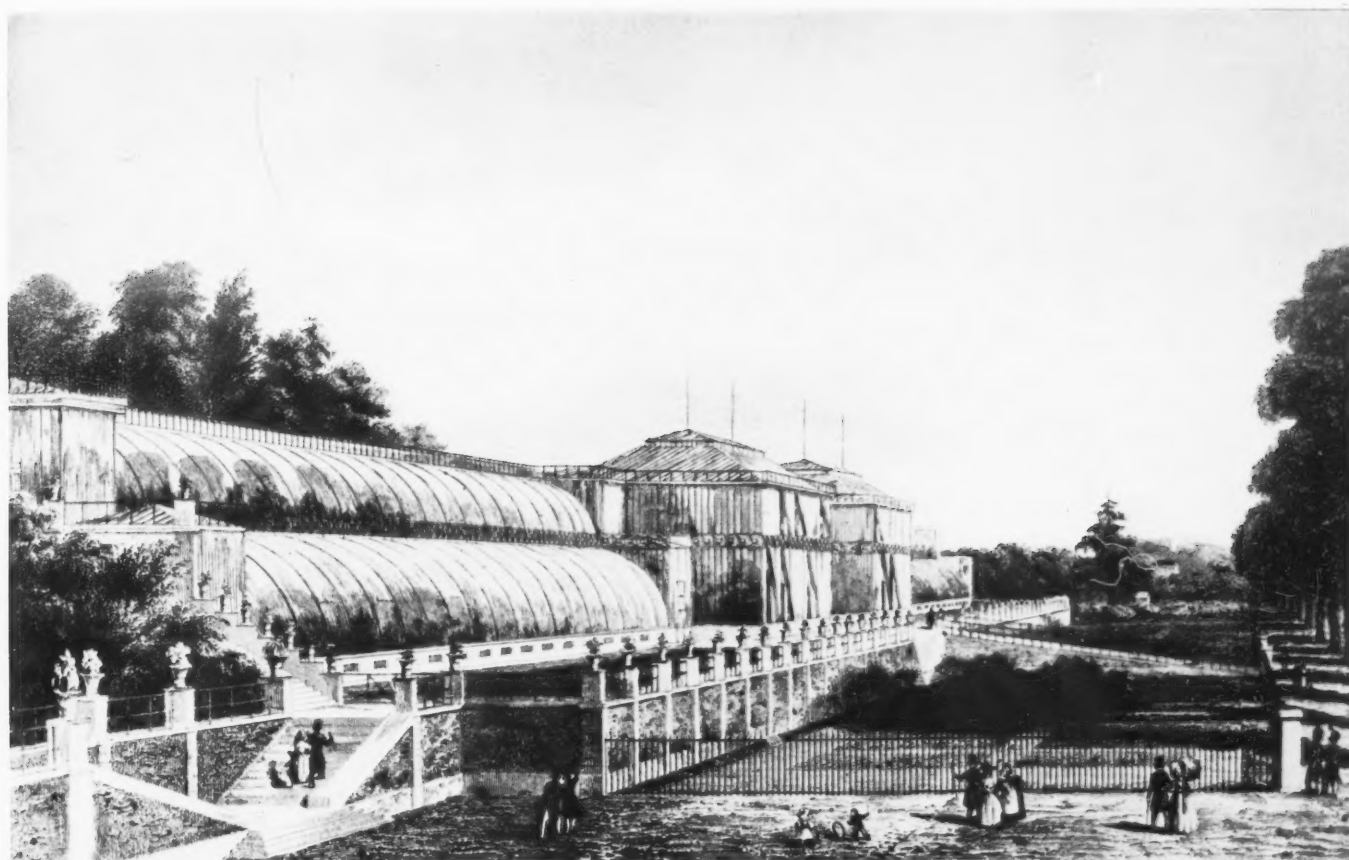
Still more illuminating were the reactions of contemporary engineers. On the day Paxton travelled up to London with his completed plans (based on the blotting-paper sketch, 4, he had made in the board-room of the Midland Railway while listening to the defence of a signalman accused of some dereliction of duty) he chanced to meet Robert Stephenson at Derby station. They continued the journey together, and while Paxton ate his lunch Stephenson studied the plans. After

* In point of fact four iron-works were concerned: Messrs. Fox, Henderson & Co.'s own shops in Birmingham supplied the light iron work, Fothergill & Co. the wrought iron; the main castings (columns, girders, etc.) coming partly from Cochrane & Co.'s Woodside Works, and partly from Mr. Jobson's foundry at Holly Hall, both of which were near Dudley. Dickens was right about the glass, for the whole of it was manufactured by Chance, Brotherton and Co., of Oldbury.

CHRONOLOGY

August 3rd, 1803 Joseph Paxton born at Milton Bryant, Bedfordshire.
March 13th, 1850 The Commissioners for the Great Exhibition invite designs from all countries (all the 233 received are rejected by them).
June 11th, 1850 Paxton goes to the Board of Trade and undertakes to produce complete plans of his own within nine days.
June 22nd, 1850 Paxton's plans shown to the Royal Commission.
June 24th, 1850 Paxton sees the Prince Consort.
July 1st, 1850 Paxton publishes his design in the *Illustrated London News* after the Building Committee of the Exhibition had intimated that it intended to carry out its own design for a domed building requiring 15,000,000 bricks.
July 12th, 1850 The Committee invites tenders for its own design, but gives a verbal undertaking that if other designs are tendered for they will also be considered.
July 15th, 1850 Paxton privately informed that his plans had been adopted.
July 26th, 1850 Fox, Henderson & Co.'s tender for Paxton's design (the lowest practicable tender received) verbally accepted by the Building Committee and the Royal Commission.

July 30th, 1850 The contractors given possession of the site in Hyde Park.
Sept. 26th, 1850 The first column raised.
Jan. 14th, 1851 All structural work virtually complete.
May 1st, 1851 Queen Victoria opens the Great Exhibition.
Oct. 15th, 1851 The Prince Consort closes the Exhibition. Paxton is knighted, together with Mr. Fox, and Mr. William Cubitt, President of the Institution of Civil Engineers and Chairman of the Building Committee.
May 24th, 1852 The structure of the Exhibition bought by a group of private citizens for £70,000, after a site of 200 acres had been secured at Sydenham. The Crystal Palace Company formed.
Aug. 5th, 1852 The first column raised at Sydenham.
June 10th, 1854 The Queen opens the completed building.
June 8th, 1865 Joseph Paxton dies at Rockhills, Sydenham.
Dec. 30th, 1866 The north transept destroyed by fire.
June 10th, 1873 Paxton's monument unveiled in the grounds of the Crystal Palace.
Nov. 30th, 1936 The Crystal Palace burnt to the ground.



A contemporary print of Rouhault *fils*'s glass and iron conservatory in the *Jardin des Plantes*, Paris, erected in 1833, which still stands. It was the first prototype of the large conservatories developed by Paxton. (Photograph by courtesy of Dr. Siegfried Giedion.)





1



2

1 and 2, two interior photographs of Paxton's Great Conservatory at Chatsworth, taken just before it was demolished in 1923. (By courtesy of His Grace the Duke of Devonshire.) 3, Cottancin's Galerie des Machines, built for the Paris Exhibition of 1889 and demolished in 1905. (From "Bauen in Frankreich," by Dr. Siegfried Giedion.)



3

a prolonged scrutiny he returned them with the one word "admirable!" (It was largely owing to Stephenson's enthusiastic support that they were eventually accepted.) Mr. Matthew Digby Wyatt was one of the two engineers appointed by the Building Committee of the Exhibition to supervise the erection of the building. The paper he read on it* before the Institution of Civil Engineers on January 14th, 1851, begins by acknowledging that though his committee had obtained some useful hints from the French Exhibition of 1849, the new *Industrie Gebäude* at Munich was "considered too academic in plan" to be a helpful model; and then turns to "Mr. Paxton's efforts to combat the prejudices of conventional construction, and to develop the capabilities of the combination of glass, wood and iron." Mr. Wyatt goes on to say that

"the care taken not to exaggerate the proportions of form in which these materials may be best and most economically used will probably tend to counteract conventionality of style in architecture, and may be expected to produce, hereafter, important changes alike in the construction and appearance of many extensive buildings throughout the country. . . . It must be felt that England possesses mechanical appliances and physical energies far exceeding those which gave form and being to the most celebrated monuments of antiquity. The walls of St. Paul's are 14 ft. thick, those of the Hyde Park building only 8 in. St. Paul's required thirty-five years to erect, this building will be finished in about half that number of weeks."

* "On the Construction of the Building for the Exhibition of the Works of Industry of All Nations in 1851." Excerpt Minutes of Vol. X of the Proceedings of the Institution of Civil Engineers.

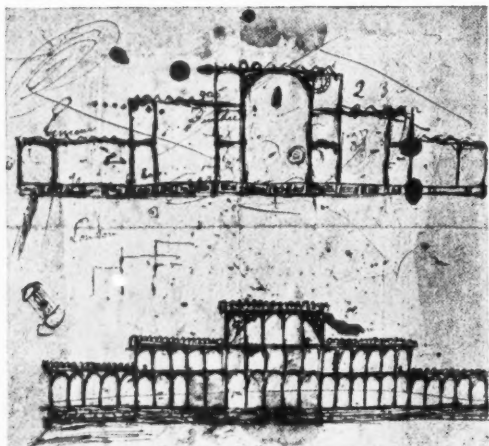
Nor is it without significance that in "The Story of the Crystal Palace" used as an introduction to the prospectus of its sale in November 1911, which was almost certainly reprinted from a much older description, the original building is proudly referred to as belonging to "that type of a class of architecture which may be fairly called 'Modern English.'" Stress is laid on its lucid plan and simplicity of design, "there is no introduction of needless ornament. One portion corresponds with another."

The only dissentient voice of any critical authority, yet that which ultimately prevailed, was Ruskin's. He found no evidence of "moral purpose" in a building he declared to be neither of crystal nor a palace, though the charter Lord Derby's

government granted the Crystal Palace Company in 1853 laid an express injunction on the directors to "preserve its high moral tone." In a pamphlet called "The Opening of the Crystal Palace," and an appendix to "The Stones of Venice," he protested against what he described as the delusion that we had invented a new style because someone had magnified a conservatory:

"The quantity of bodily industry which the Crystal Palace expresses is very great. So far it is good. The quantity of thought it expresses is, I suppose, a single and very admirable thought of Sir Joseph Paxton's—probably not a bit brighter than thousands of thoughts which pass through his active and intelligent brain every hour—that it might be possible to build a greenhouse larger than ever greenhouse was built before. This thought, and some very ordinary

THE CRYSTAL PALACE



4. Paxton's famous original sketch for the Crystal Palace, made on a sheet of blotting-paper in the board-room of the Midland Railway, Derby, now in the Victoria and Albert Museum. 5, a contemporary steel engraving of the building in Hyde Park, from a view-point that brings out the greater merit of the original flat-roofed design.

algebra, are as much as all that glass can represent of human intellect."

If only indirectly, no man was more responsible than he was for disseminating the fatal idea that form and structure are separable entities. Ruskin's rejection of the one great building that was an embodiment of the new technical civilization of his own age undoubtedly gave the decisive impetus to the heresy that architecture and engineering are different things measurable by different standards; their respective exponents two totally disparate order of beings, artists and artisans, Hellenes and Goths.

With each succeeding generation that heresy became more confirmed among the educated classes. The only biography of Paxton furnishes several typical examples of the inevitable intellectual confusion which has resulted. "Paxton and the Bachelor Duke" is a well-written and well-documented book, and Miss Violet Markham has obviously a far more than merely filial admiration for her grandfather. Yet quite unconsciously she succeeds in being considerably less fair to him than to the Prince Consort. If it is startling that the following passage could have been written in 1935, and by Paxton's granddaughter of all people, it is safe to say that but for Ruskin it could never have been written by anyone.

"Personally, I cannot escape the conviction that had Paxton devoted himself to scientific horticulture and its allied branches of research, his life, though less varied and interesting, would have had more permanent achievement . . . he did not put his genius to permanent ends, and so little by little his name has slid into oblivion."

Miss Markham sees that the Crystal Palace was the first important building constructed with standardized, mass-produced parts; that none "was ever more perfectly adapted to the end it had to serve"; and that it "fulfilled the two essentials of all fine architecture—simplicity and consistency." She sees far more than all this, for she has given a description of the building which aptly resumes its lasting significance that it would be hard to better:

"The Crystal Palace was praised—legitimately praised—for the degree to which it combined

lightness of structure with permanence and strength. It was praised, too, for the beauty of its mathematical proportions no less than for its size. There was nothing crooked, awkward, or out of place about Paxton's glasshouse. The subordination of its parts to the whole was complete, and the building was an expression of order and exactitude."

She fully grasps the significant contrast between the structure of the Great Exhibition and its contents: "Paxton's palace had neither frills nor meaningless ornament . . . Inside it one spirit reigned. Any article of ordinary domestic use was tortured to death by meaningless ornament." But she fails to draw the obvious deduction. The Ruskinian tradition was

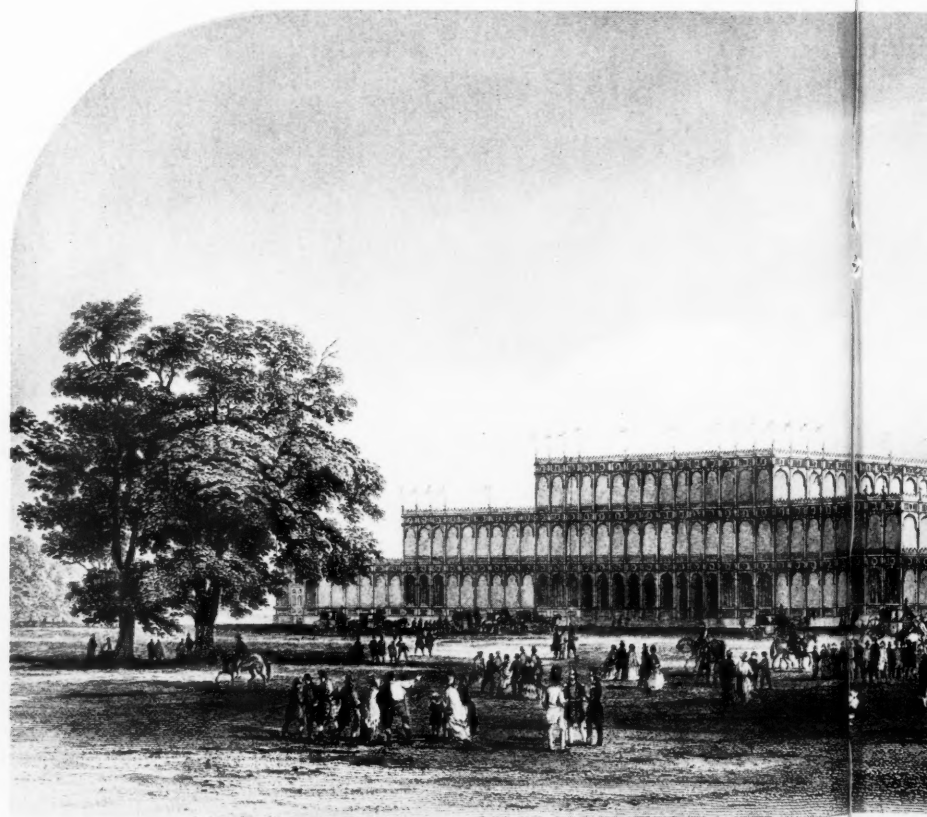
too strong for her, and in its spirit she passes in shocked surprise to consider praise that in the Master's eyes was patently illegitimate:

"It was claimed that a new era in building had dawned with it. The Crystal Palace was compared with the famous monuments of antiquity" (a comparison she dismisses as "of course absurd," though she admits it was "the outstanding monument of the Victorian Age"). "Paxton certainly thought he had started a new era in ferro-vitreous architecture, and that iron and glass would be largely used in the future, not only for commercial buildings, but even in dwelling-houses."

The aesthetic presumption of such a claim leads her to the strangely contradictory conclusion that:

"In this anticipation he was wrong(!), though by a strange turn of Fortune's Wheel ferro-vitreous principles are entering, apparently, into the thoughts of latter-day architects. Paxton's name has found its way into modern articles on this subject, and it may be that some principles of the Crystal Palace will be applied again under new conditions."

Every building of clear structure and logical plan that uses modern materials in standardized, prefabricated units to express the present age and no other is as much the indirect issue of Paxton's brain as Miss Markham is of his loins. When the Great Exhibition closed, Lord Carlisle denounced what then seemed the inevitable destruction of the Crystal Palace as "a perverse and senseless act of vandalism." This may be paralleled by Frantz Jourdain's comment, over half a century later, on the demolition of the



superb *Galerie des Machines*, 3, which Cottancin had built for the Paris Exhibition of 1889: "an act of artistic sadism." The link between the two buildings is as consecutive as that between Freyssinet's airship-sheds at Orly and Dischinger's Leipsic market-hall, or Gropius's Bauhaus at Dessau and Corbusier's Salvation Army Hostel in Paris. Each was a step in the liberation of architecture. Only Paxton's was the first.

Yet in recording that the Jury of the Civil Engineering and Architectural Section of the Great Exhibition (their common grouping shows that the cleavage between the two professions was still a very narrow one) gave its highest award to Paxton for the design which had made the exhibition possible, Miss Markham feels in duty bound to add: "there was no exaggerated talk of beauty in their report, or of a novel order of architecture—claims that within a few years made the Crystal Palace appear ridiculous." Ridiculous to whom?

G e n e s i s

Up to Paxton's time greenhouses had been built with a heavy timber framework and very small panes of glass. As a result their interiors were darkened to a corresponding extent. Paxton began to lighten, and so also cheapen, the framework by bevelling down the rafters. He also gave the angle of the roof the right pitch to catch a maximum amount of light when

the sun was low, and a minimum degree of direct sunshine when it was at its height. His next step was to slot the sash-bars so that they could hold the panes without putty bonding. This in itself produced a far more water-tight structure. He preferred timber to iron framing up to about 1831, when he mentions that estimates for a new forcing-house showed a cost of £1,800 in metal as against £500 in wood.

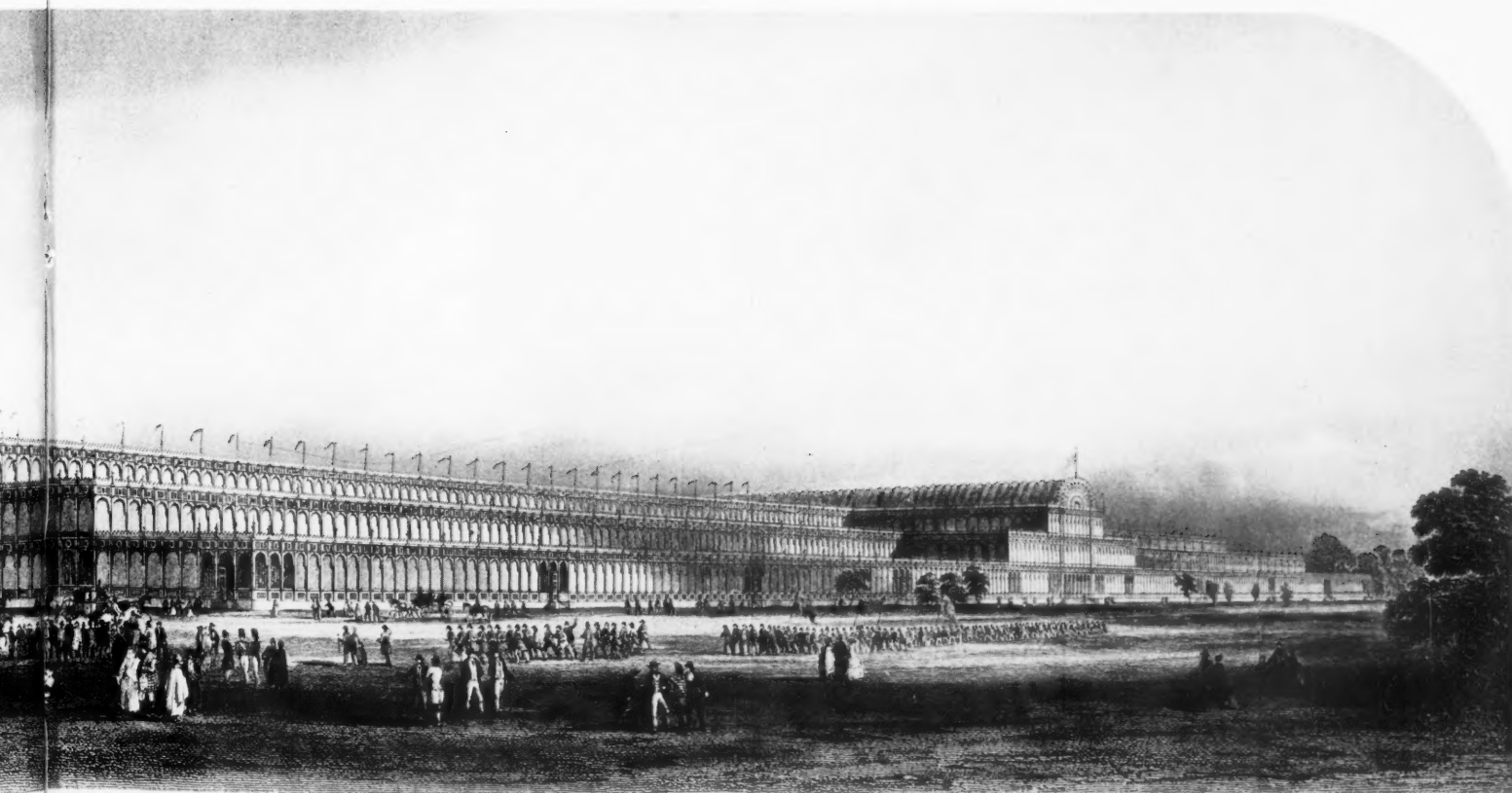
Twenty years' close study of glazing problems preceded the design of the "glass case" for the Great Exhibition. Paxton had begun modifying the design of greenhouses as early as 1825, when still employed in the Chiswick Gardens of the Horticultural Society. A year later he was appointed head gardener at Chatsworth by the sixth Duke of Devonshire. "By his confidence and liberality," Paxton said at a dinner in his honour in August, 1851, "I have had placed before me ample means for various experiments, without which there would never have been a Crystal Palace."

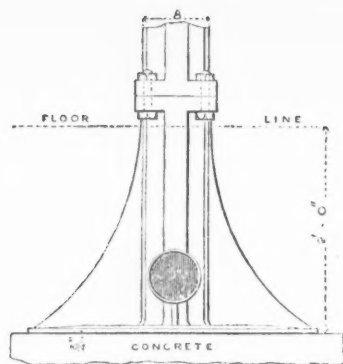
It is not quite clear whether Paxton was the originator of ridge and furrow roofs for greenhouses. He certainly built a pinchouse on that principle in 1833, which proved very satisfactory. The following year he paid his first visit to Paris. We know that he went to see the *Jardin des Plantes*, where Rouhault fils had just finished his iron-framed *Serres des Jardins du Musée d'Histoire Naturelle*.

This conservatory, Plate ii, which still

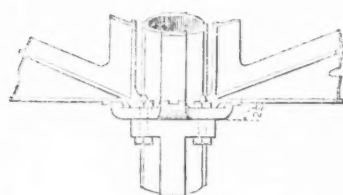
stands, had a volume of 9,000 cubic metres. It consisted of two barrel-vaulted greenhouses (for lower temperatures) 61 metres long, 7 metres wide, and 4·9 metres high, placed one on top of the other, entered between two rectangular pavilions (used as hothouses for tropical plants), 20 by 12 metres in area and 15 metres high. Now the form and dimensions of Rouhault fils's building were not very dissimilar to those of the Great Conservatory at Chatsworth, 1 and 2, that Paxton was constructing between 1837 and 1840. When Paxton was next in Paris, in 1848, he attended a concert in the "Jardin de Verre" (not easy to identify unless Rouhault fils's "Serres" were occasionally used for such purposes), which he describes as "a large glass-house used for balls and fêtes, nearly as big as Chatsworth Conservatory, and very well laid out."

The Great Conservatory was an iron-ribbed, barrel-vaulted structure, with an upper gallery, 277 by 123 ft. in area, and 67 ft. in height. Paxton devised a machine for making the forty miles of sash-bars needed, which saved £1,200, and cost only £20. For this he subsequently received an award from the Royal Society of Arts—apparently his first contact with the body that promoted the Great Exhibition. But for this patent machine—which also cut a groove out of lower sash-bars that collected all external moisture and drained it away by gravity—it would have been impossible to turn out the miles and miles of sash-bar required for the Crystal

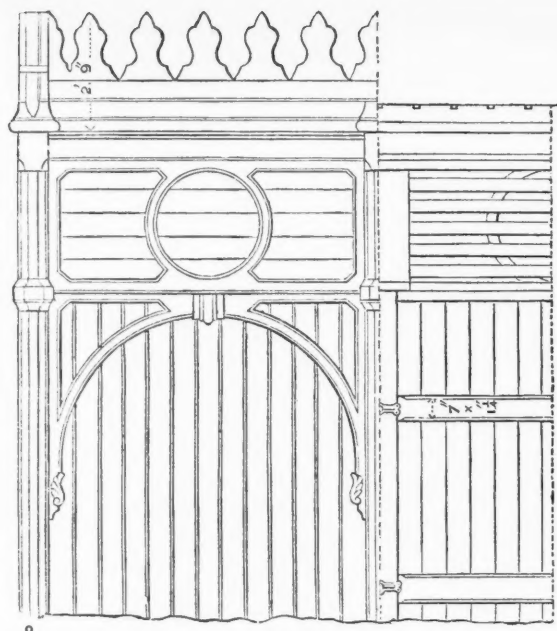




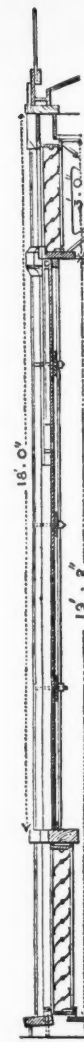
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Constructional details of the original building, from a pamphlet by Digby Wyatt entitled "On the Construction of the Building for the Exhibition of the Works of Industry of All Nations in 1851," reproduced by courtesy of the Institution of Civil Engineers. 6, foundations and base-plates: elevation of base-plate showing connection with column above it. 7, column and connecting pieces: lower portion of connecting pieces showing their attachment to the column at story levels. 8, the face-work: a typical upper section. 9, vertical section of the face-work of the lower tier. 10, the Paxton ridge-and-furrow

Palace in the very short time available. An even greater problem was solved in the same building. Paxton wanted to do away with the leaky overlaps which resulted from the short sizes of glass then in use. Chance, Brotherton & Co. had just begun to manufacture sheet-glass in lengths up to 3 ft., and Paxton finally succeeded in bullying them into supplying him with 4 ft. lengths. Thus Paxton was responsible for creating the plant that made the standardized glazing of the Crystal Palace a practical possibility. Though this glass only weighed 15 oz. per sq. ft., he was able to point out that snow had often lain a foot deep on the conservatory's roof without any ill-effects.

As a sort of Eighth Wonder of the World, being at the time its largest glass cage, the Great Conservatory enchanted all those privileged to see over it. "Out and out the finest thing imaginable of its kind," Prince Albert declared during his visit to Chatsworth in 1843. "After St. Peter's there is nothing like the Conservatory," said the Duchess of Sutherland. "This is the only thing I can compare it to. One cannot call it regal or imperial, for no king or emperor had anything like it—the conception is so bold, the success so perfect." It was demolished in 1923—not without

difficulty, for the first five attempts to blow it up produced very little impression—owing to the increased cost of fuel and maintenance caused by the last war.

The only other prototype of the Crystal Palace was the Lily House Paxton had to build in three months owing to the rapidity with which *Victoria Regia* outgrew her original tank in 1850. This was a small glass and iron structure, with a ridge and furrow roof, measuring 61 by 49 ft. that cost a mere £800.

"Its roof was not only a roof, but a light and heat adjuster: the iron columns were not only columns but drain-pipes; rafters and sash-bars served the same purpose. The floor was not only a floor, but at the same time a ventilator and a dust-trap. Multiply these principles in a building covering 18 acres, weld glass and iron together by girders above and below, and what emerges is—the Crystal Palace."—(Violet Markham: *Paxton and the Bachelor Duke*.)

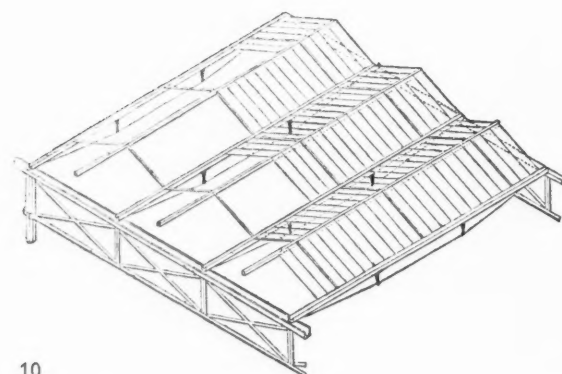
On his return to Chatsworth in July, 1851, the Duke of Devonshire wrote in his diary: "Enchanted with Paxton's work: the new Lily House, parent of the Great Exhibition."

Hyde Park

The site provided for the Exhibition in Hyde Park was a parallelogram measuring 2,300 by 500 ft. In plan Paxton's structure covered a rectangle 1,851 ft. long and 408 ft. wide. This provided a total floor space of 772,784 sq. ft., which the galleries increased to 989,884 sq. ft., and a roof area of 17½ acres. In section it was a cubed pyramid rising evenly from one to three stories on both its longer sides, the east and west ends being simply vertical sections through the building. A central nave, 72 ft. wide and 64 ft. high, traversed its axis from east to west, crossed at right angles

by what was called the transept. The transept had the same width as the nave, but rose in a barrel vault to a height of 104 ft. On each side of the nave and transept were a succession of 24 ft. aisles, all either 24 or 44 ft. high. The galleries were placed at 23 ft. levels; 24 ft. was the basic dimension adopted. All the 3,300 columns were spaced at this interval, or multiples of it; and all the 2,300 girders, with the exception of those supporting the galleries, were of a corresponding length. There was an entrance on every side except the north, and fifteen symmetrically spaced exits. The "dust-trap" flooring fell 1 in. in 24 ft. with the slope of the ground.

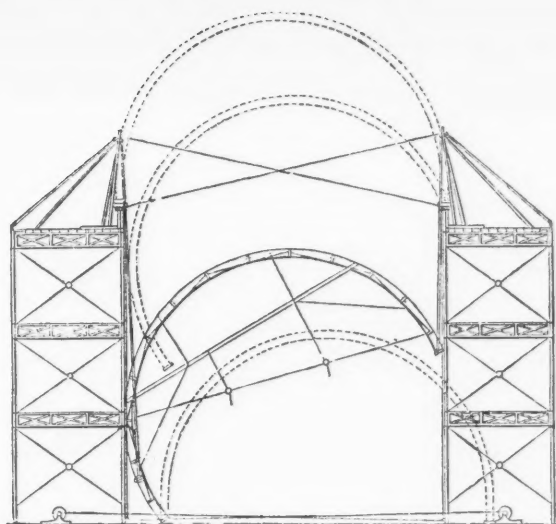
The face-work of each story was of panelled boarding that culminated in a flight of light iron arches springing from column to column at a 14 ft. 11 in. level; above which it was continued as a box-frame, with simple mouldings, surmounted by an 18 in. ornamental cast-iron cresting. The infilling of the transept ends was the same, except for the radiating iron tracery of the semicircular arch that crowned them. Though modelled on the roof of the Great Conservatory at Chatsworth, this



10



11



12

roofing: isometric view of one 24 ft. bay of roofing, partly glazed. 11, the "Paxton gutter": section through the centre and section at the end. 12, method of erection in Hyde Park: section through the transept showing the arrangements for hoisting the semicircular wooden ribs. The head-piece to this article shows a half-section through the arched roof of the transept.

arch was not part of the original design. It was simply a device to avoid cutting down the clumps of great elms growing along the shorter axis of the site, which the opponents of the Exhibition symbolized into "John Bull's Trees of Liberty."

All the columns were either 16 ft. 7½ in. or 18 ft. 5½ in. long; 310 of them were erected in a single week. On the ground floor two wooden columns were placed between each pair of iron ones. The 1,074 haunched base-plates required for the latter were laid on mass-concrete pier-foundations, the maximum load exerted on the gravel subsoil nowhere exceeding 2½ tons per superficial foot.

There were 372 wrought-iron roof-trusses (16 of which were riveted in a single day) of three different spans: 24 ft., weighing 11 cwt. 3 qrs.; 48 ft., weighing some 13 cwt.; and 72 ft., weighing about 35 cwt. All had ties at 8 ft. centres, and all were 3 ft. deep except "the four extra strong" 72 ft. ones that carried the lead flat and the eight pairs of semicircular ribs of the transept. These ribs were made of three thicknesses of wood, and all of them were hoisted into position within eight days. Seven of the 72 ft. trusses for

spanning the nave were raised in one day, the derricks travelling 168 ft. Steam power was supplied by four stationary engines.

The 23 ft. lattice-work girders for supporting the galleries, which had 5·31 in. top and 7·64 in. bottom flanges, were all proved to a minimum strain of 15 tons, and some with extra scantlings to 22 tons. They were lifted by cranes from the carts that brought them, weighed, proved on the testing-apparatus, and stacked ready for use in under four minutes apiece. The 24 ft. girders were single castings proved to a strain of 9 tons. As many as 316 of these were turned out by the works in a single week.

There was a bit of harmless fake about the 48 ft. and 72 ft. roof-trusses. In the direction in which, if in action, they would have been under compression, there were diagonals of wood "only inserted for appearance," diagonal strains being taken up by tension bars only.

As in the Great Conservatory there was internal drainage. A system of transverse box-gutters, placed at 24 ft. intervals, drained into the 6 in. pipes enclosed in the supporting columns. They in turn were fed by 24 miles of "Paxton gutters," stretching along the roof at 8 ft. centres, which collected rainwater from the exterior and condensed vapour from the interior in parallel channels running along each side of the glazing. These Paxton gutters, which were machine-cut in Fox, Henderson's Chelsea Works, gave extra stiffening to the whole structure. The Paxton ridge-and-furrow roofing weighed only 3½ lb. per superficial foot. A travelling stage devised by Mr. Fox enabled glazing to be carried out in all weathers. In all 900,000 sq. ft. of glass, weighing nearly 400 tons, had to be fixed. Each glazier averaged fifty-eight 4 ft. 1 in. lengths (some 200 sq. ft.) a day, the champion glazier's best day's record having been 370 sq. ft. The sash-bars (of which there were 202 miles) were dipped in tanks of blue paint, and then passed through fixed

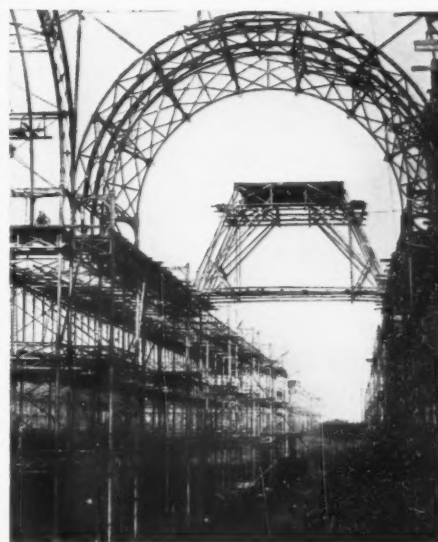
brushes that "left them as neatly finished as if by hand." There was a canvas covering that could be stretched over the whole of the roof and south front, in which the joins coincided with the gutters. Ventilation was by means of galvanized-iron louvres let into the timber face-work of each of the stories. One essentially modern feature was that the rising framework of the building provided the scaffolding for its own construction. When the work was at its height 2,260 hands a week were employed. They were paid at the rate of four shillings a day.

Fox, Henderson & Co.'s original tender was for £79,800, or a little under a half-penny per cubic foot. A subsidiary estimate of £27,980 to cover alterations and additions was afterwards passed by the Commissioners, who in the end paid the contractors a further £35,000.

S y d e n h a m

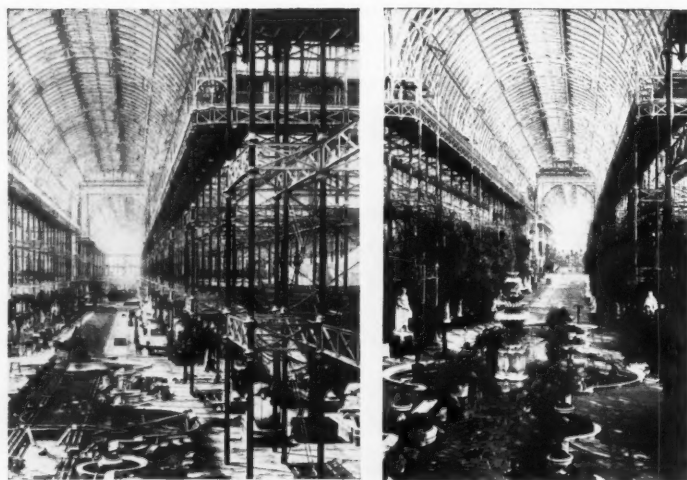
In Hyde Park the purity of Paxton's original design had been somewhat marred by what was there a necessary expedient, as temporary as the structure itself. At Sydenham, where the building was re-erected as a permanency, and there was no sort of necessity for it, this fortuitous feature was repeated on the grand scale as a merely versatile *tour-de-force*. The anonymous "Story of the Crystal Palace" voices the beginning of what Corbusier calls the bourgeois reaction:

"In the parent edifice the external appearance, though grand, was monotonous. In the Sydenham Palace an arched roof covers the nave—raising it 44 ft. higher than the one in Hyde Park. Three transepts were introduced instead of one. A further improvement was the formation of recesses 24 ft. deep in the garden fronts of all the transepts. These throw fine shadows and take away the monotony of plain glass walls."



13, method of erection at Sydenham: a photograph of 1853 showing the lattice iron ribs of the north transept being erected by a travelling gantry.

THE CRYSTAL PALACE



14 and 15, two interior views—the nave and one of the transepts—of the Crystal Palace at Sydenham, taken during the first decade of the century.

Miss Markham is even more dogmatic: "the arched roof was in every respect an improvement on the flat roof." These late-Victorian opinions reveal how much nearer mid-Victorian mentality was to that of the present day.

The new palace was 1,608 ft. long—or including the two wings 2,756 ft.—and 25 acres in area. All the old material was used again, except the glazing of the

roof and the framing of the central transept; and, apart from the western front, it was now claimed to be an entirely glass and iron structure above the floor level. The weight of glass and iron incorporated was 500 and 9,642 tons respectively, but the fact that 103 tons of nails were used (as against 175 tons of bolts and rivets) proves how much timber remained. Another departure was that 15,391 cubic

yards of brickwork had to be laid. The loose nature of the soil called for brick and concrete foundations under every column, and Paxton took advantage of the sloping site to add a basement along the garden front so as to give the building a higher elevation in perspective. Through this basement ran what was called "the Paxton tunnel": a brick-arched subway, 24 ft. wide, for bringing up heavy exhibits and fuel for the boilers direct from the railway sidings. Fifty miles of hot-water piping were supposed "to raise the atmosphere to the mild and genial heat of Madeira throughout our cold and damp English winter."

Though 7,000 men were employed continuously, it took them three times longer to erect the building at Sydenham than had been required in Hyde Park. By the time it was finished, and equipped to provide what Queen Victoria called "elevation, instruction, delight, amusement," nearly £1,500,000 had been spent. The strangely catholic uses the Crystal Palace was put to, and the extraordinary medley of its contents, so hypnotized the post-war generation that it could not see the wood for the trees. And now it is too late, for both have disappeared together. Yet the wood will be remembered and revered, because from it grew the first structural renaissance of architecture since the Middle Ages.

a tribute: by le corbusier

The Crystal Palace no longer exists. What has disappeared with it was not a curiosity, but one of the great monuments of nineteenth-century architecture.

That century had a strange destiny. It engendered the architecture of the modern world, exemplifying it in immense and splendid structures. This architecture was the fruit of discovery, of the joy of creation, and of enthusiasm. The mind of man suddenly began to compass unguessed and amazing perspectives. The iron and glass which were furnished by the rising new industries allowed unprecedented forms to be evoked, dimensions such as one may say architecture had never known. I mean the dimensions of those vaulted buildings and huge covered markets that were as light within as fields seen under the open sky. They were built of iron and glass. The international exhibitions of that age of discoveries offered fruitful opportunities for realizing structures of this kind. In London as in Paris stupendous palaces were raised . . . but these were fated to gather about them all the worst excrescences of the successive stages of a rising tide of bourgeois revulsion. While the new world was being born the forces of reaction rose *en masse*. Academism invaded government departments, the schools and institutions. Never had architecture sunk to such a low ebb. The most baneful temper prevailed. It gained the day, and as a result those magnificent vaults of iron and glass which had been the heralds of a new age were demolished right and left.

By some miracle the Crystal Palace still remained as a last witness of that era of faith and daring. One could

go and see it, and feel there how far we have still to go before we can hope to recover that sense of scale which animated our predecessors in all they wrought.

In every country and under all forms of government the last onslaughts of the spirit of reaction are now striving to crush our endeavours. We are accused of being demented or irresponsible. And the real tragedy is just that these witnesses in our defence are no longer extant. When, two years ago, I saw the Crystal Palace for the last time, I could not tear my eyes from the spectacle of its triumphant harmony. The lesson was so tremendous that it made me feel how puny our own attempts still are. But I felt, too, how eminently justifiable and practicable our proposals are, *if only they get a chance*. In them we are simply following the same line of development as the great constructors of the nineteenth century had traced.

Architecture is not a manifestation of the styles of the schools. It is a way of thinking, of achieving order, and of expressing contemporary problems in terms of materials. Today, when the whole world has got to be refashioned, our towns as the countryside, and great communal undertakings appear both urgent and inevitable, we have more need than ever of the assurance that we can forge ahead—more need than ever of not being afraid to see too clearly or too big.

That "uniformity," of which so much has been heard among the various arguments used to assail the New Architecture, offered a convincing example of its plastic possibilities in the Crystal Palace, where all was grandeur and simplicity.

CURRENT ARCHITECTURE - I



WALLACE MARCHMENT

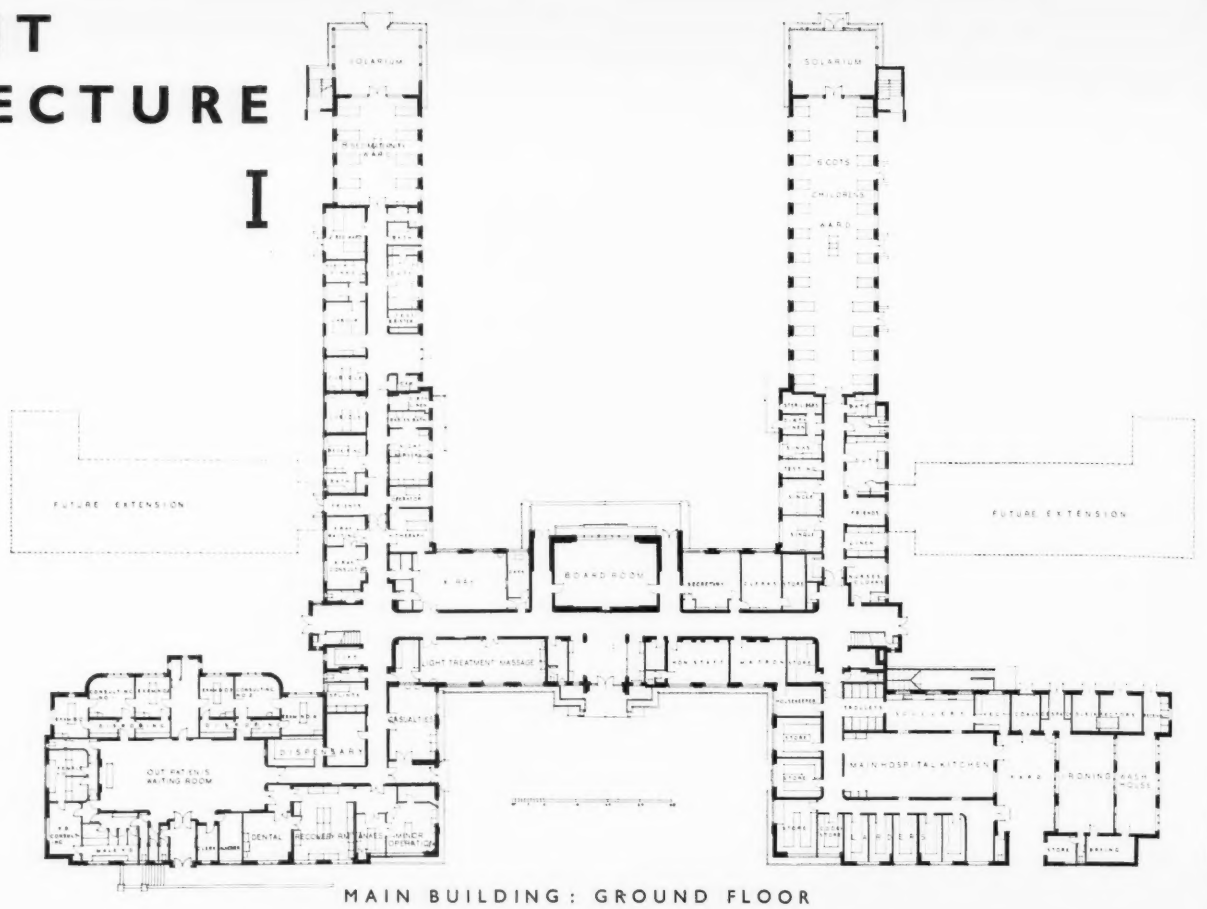
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The new Scarborough Hospital is situated, as the general view, 2, shows, on an open site, steeply shelving but with a flat area on top, on which the main buildings had to be concentrated. Beds were required for 140 patients, with the possibility of a future extension to double the size. The kitchen, operating theatres and administrative offices are planned to accommodate these future additions without structural enlargement. The wards are planned in two wings, facing south, with the administrative portion in a central block between

them. The main building also contains the matron's and house surgeon's quarters, dining rooms and 26 maids' bedrooms. Adjoining, in a separate building, is the nurses' accommodation: 60 bedrooms, common rooms and (as the hospital is a recognized training school for nurses) lecture and demonstration rooms. 1, the entrance front of the nurses' home. 2, a general view of the buildings, showing the cottages flanking the entrance in the foreground and the nurses' home in the distance.

CURRENT ARCHITECTURE

I



MAIN BUILDING: GROUND FLOOR

WALLACE MARCHMENT



SITE, PLAN

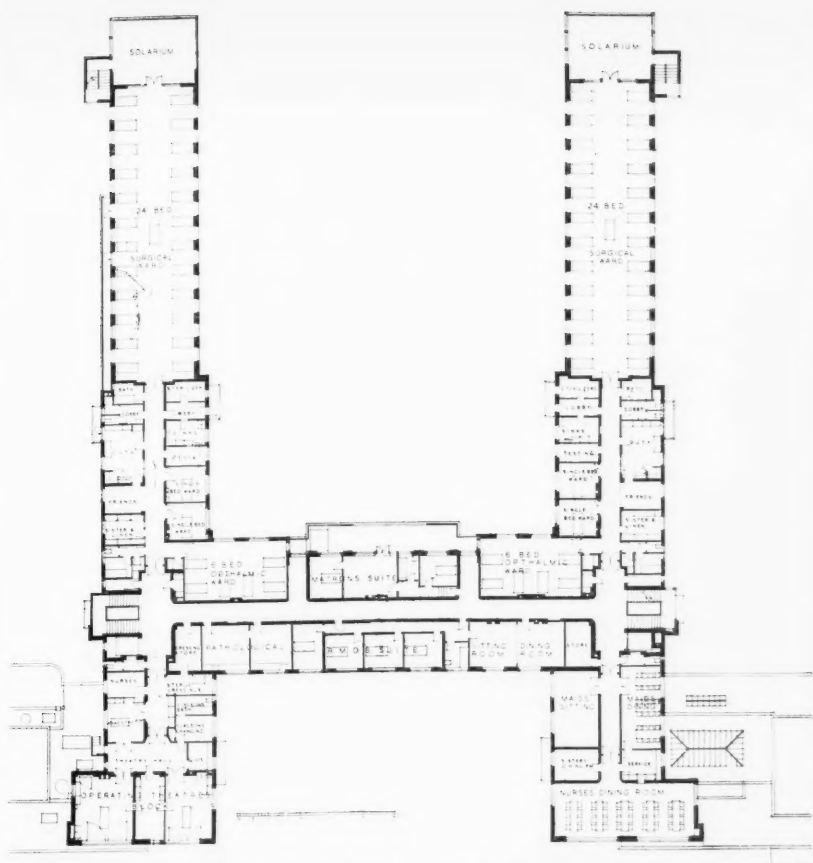


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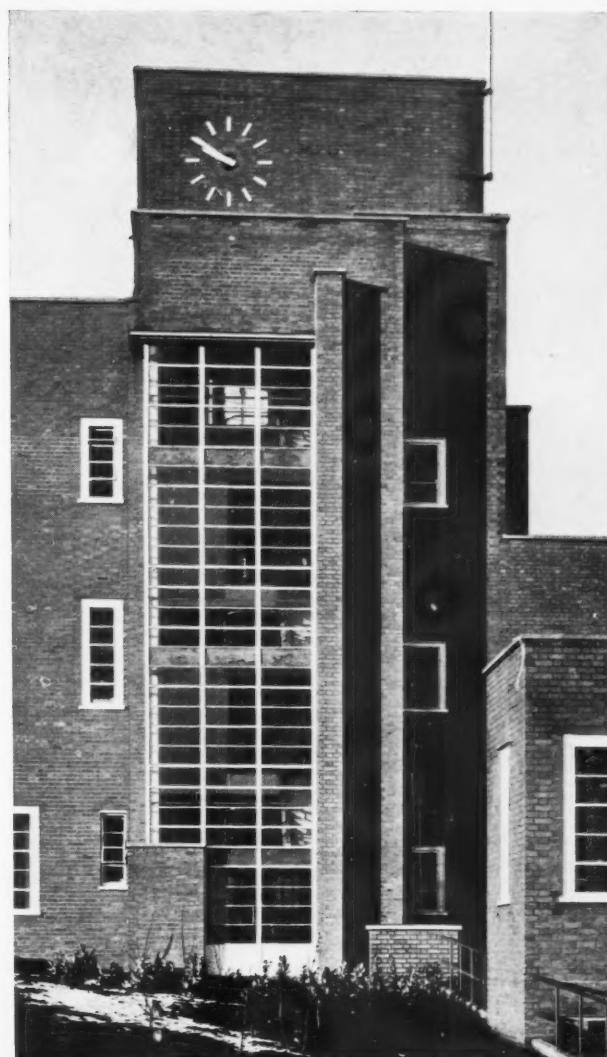
Scarborough Hospital : 3, the main entrance of the hospital proper (the nurses' home is illustrated overleaf). 4, the main entrance hall. 5, a detail of the side elevation, showing one of the main stair windows, which are duplicated at either end of the main corridor. The construction of the hospital is weight-

carrying brick cavity walls, which, owing to the exposed nature of the site, have had to be designed to keep the interior dry against driving rain at gale pressure. The concrete foundations are reinforced to compensate for the low bearing capacity of the subsoil. Floors and roofs are reinforced concrete

and
exter
stone
hall a



MAIN BUILDING: FIRST FLOOR



5



4



NURSES' HOME:
FIRST FLOOR

NURSES' HOME:
GROUND FLOOR

site,
gale
the
rete

and hollow tiles. Internal partitions are brick or breeze blocks. The exterior is finished in light-toned brown brick, with copings and cills of Portland stone. The windows are steel in wood frames, painted white. The entrance hall and the main corridor are panelled in terrazzo, and other corridors and

staircases have terrazzo dadoes. Walls generally are plastered and enamelled. Floors are teak blocks in the wards, terrazzo in the sanitary quarters and operating theatres and linoleum elsewhere. The scheme is the result of an open competition held in 1932.

CURRENT ARCHITECTURE

2

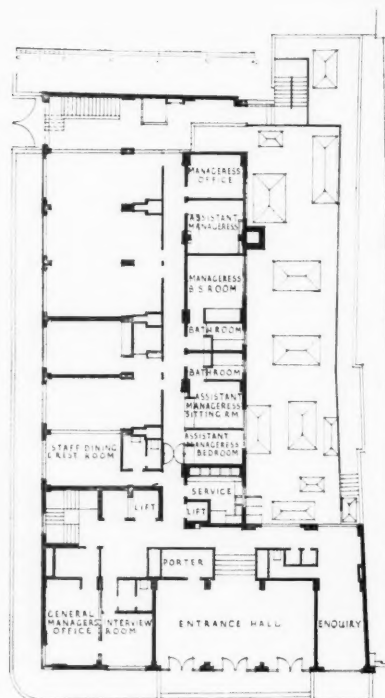
ADIE, BUTTON
AND PARTNERS



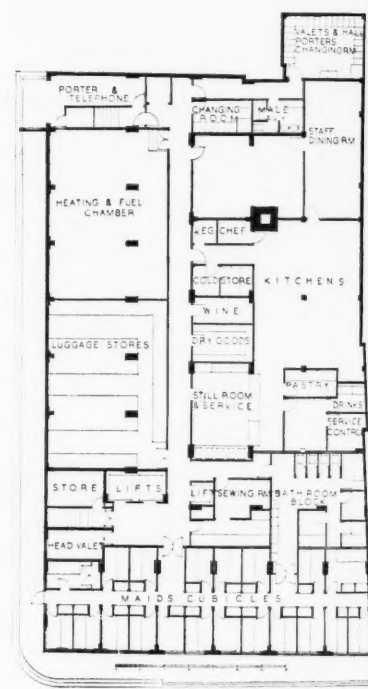
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7



PICCADILLY
GROUND FLOOR



BASEMENT

Athenaeum Court, Piccadilly, is the name of a new block of flats planned to be let as small single units or in suites. It faces the Green Park, and the position of the site and its value made it desirable to build to the maximum height. There are ten floors of flats above the ground floor. The main entrance, 6, is in Piccadilly and leads into a large furnished entrance hall, 7. There is a subsidiary entrance in Down Street. On the ground floor are the adminis-

tration offices and managers' living accommodation. Below, in a basement, are staff accommodation, kitchens and service rooms, heating chamber and storage space. Provision had to be made for a large staff and kitchens as the flats are intended to have the maximum service facilities. The ten floors of flats are approximately standardized in plan, occupying an L-shaped area with the floor services placed at the junction of the two corridors. The maximum

CURRENT ARCHITECTURE

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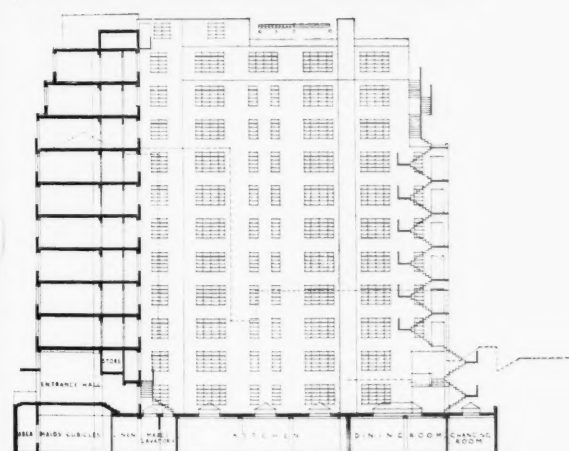
OLIVER HILL



8



9



SECTION

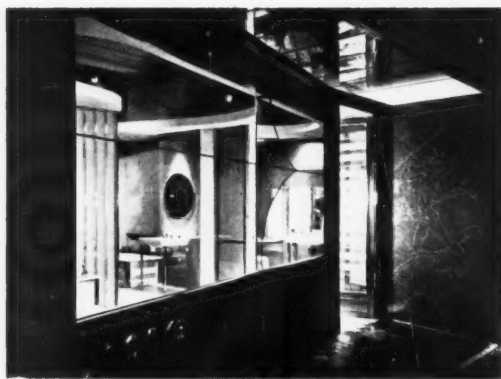


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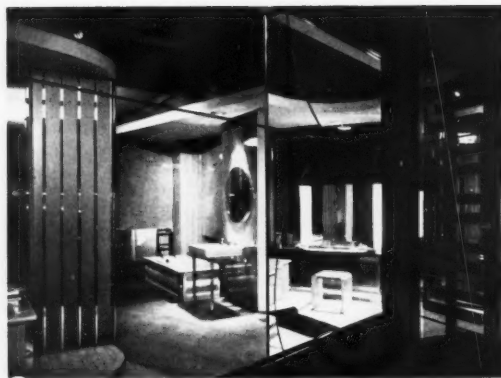
possible number of flats overlooks the Park. They are well provided with built-in furniture and equipment. The building is of reinforced concrete construction with the main exteriors faced with Portland stone, built homogeneously with the structure. The building is sound-proofed by insulated and sprung floors and by making all partitions between flats cavity walls. Windows and blinds are designed as one unit, and incorporate the ventilation

units and filtration gauzes. No blinds are visible until they are lowered. 8, the building from across Piccadilly. 9 the Down Street elevation.

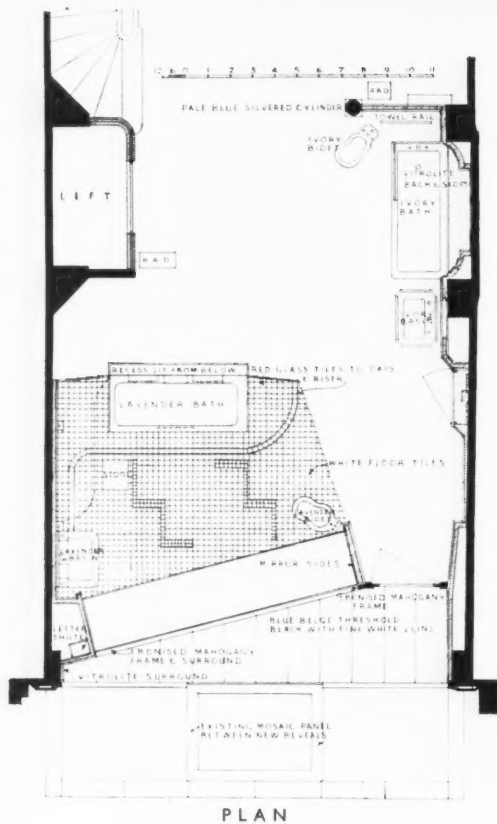
10, new showroom in Bond Street, to display Messrs. Shanks's sanitary fittings. The showroom has walls lined with special silvered matt-surfaced gun-metal coloured glass and a floor of dead white matt pottery tiles with inlaid bands of



11



12

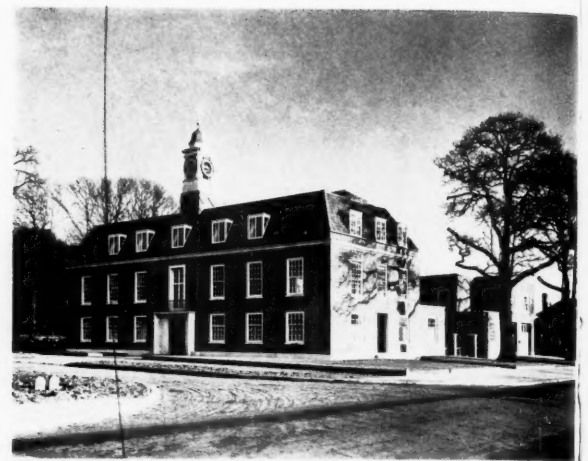


PLAN

bright tomato red. The pilasters are of matt white deep-fluted opaque glass. The shop-front has a window of the non-reflecting type. The whole is set at an angle (see plan) so that the door on the right-hand side of the window is under cover. The return wall, left exposed externally by this set-back, is faced with a dark Hopton Wood stone panel with an incised design by Eric Gill. This can be seen on the right of the exterior view, 11, 12, another interior containing,

as well as the displayed fittings, a dressing-table of 1½ in. plate glass, partly deep-sandblasted on top and silvered underneath. The recesses beside each bath are lined with mirror and indirectly lighted.

The new Council Offices at Welwyn Garden City, 13 and 14, contain offices, a fire station (with hose tower and garages), a mortuary and caretaker's

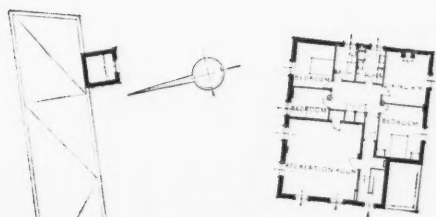


13



14

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FIRST FLOOR



GROUND FLOOR



15

C. H. ELSOM AND H. STONE

quarters. They are the result of an open competition held in 1935, the assessor for which was C. H. James. The exterior is designed to harmonize with the garden city architecture of Welwyn, as the site is in a prominent position on the main axis, where space was put aside for public buildings in the original lay-out. The building is faced with multi-coloured facing bricks and artificial stone; the roof is covered with hand-made pantiles. The structure

is of solid brickwork, with hollow tile floors. 13, a general exterior, showing the main entrance to the offices. 14, a view from inside the courtyard, looking towards the entrance gates and with the blank wall of the council chamber showing on the right. 15, the doors from the council chamber to the staircase landing. The walls of the chamber are finished in acoustic plaster and spray distemper and have a dado of Australian walnut. The doors are covered with hide.

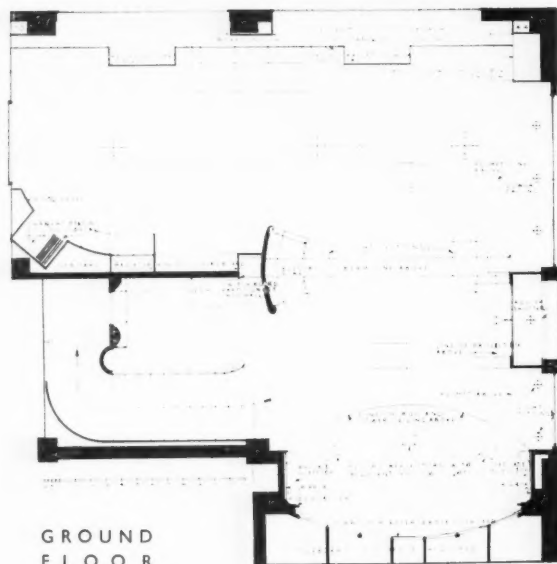


16

STANLEY HALL
AND EASTON AND
ROBERTSON



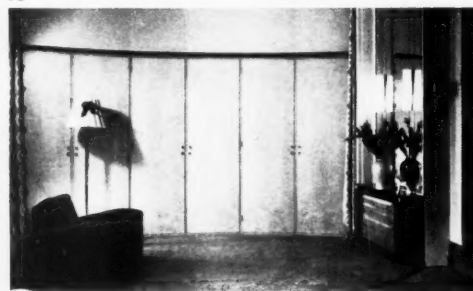
17



GROUND
FLOOR



18



19

A new shop-front and showrooms in South Audley Street, London, for a firm of decorators and furnishers. 16, the entrance hall, mostly in sycamore with mirror-glass panelling, showing the foot of the staircase. The latter is in light oak with a fluted balustrade. The photograph is taken from the vestibule, either side of which is a show-window through which the interior

can be seen. 17, the new exterior. The shop-front is in painted bronze and is modelled on the firm's old shop-front, which used to stand in the same street. 18, showroom on the upper floor, in pine with a parquet floor. This room is intentionally "period" in design, to form a background for traditional furniture. 19, ground floor showroom, with cupboards for the display of materials.

"BRITISH ARCHI- TECTURE" EXHIBITION AT THE R.A.

The pull Burlington House has over all the other exhibition galleries is that the public knows about it and goes to it. We do not take notice of and criticize the annual summer show there because of any significant position it holds in the world of art—still less the Architecture Room for any position that holds in the world of architecture—but because these represent art and architecture as officially exhibited to the mass of the uninformed public—a public that, however conscientiously it goes to the Academy, probably never goes to an art exhibition elsewhere.

It is as British architecture expounded to the public, then, that we must regard this exhibition. If the public can learn nothing from it, no amount of professional interest it may have in detail, for the architect as a professional man or for the student of architectural styles, can justify it.

And this is where it fails—abjectly. It neither tells the public anything about contemporary British architecture (except that it is in a confusing condition), nor even speaks to the public in a language it can understand. Two essential requirements were; first, an idea behind the exhibition—an understanding of what the exhibition intended to do: any suspicion of this is absent. And secondly, that the exhibition should itself be attractive as a display: but little attempt to make it so is apparent. The effect is of a depressing medley of little drawings, miscellaneous enlarged photographs, pretentious perspectives, crowded on to the walls with an unbelievable lack of point or intelligible emphasis. If the Academy architects are themselves incapable of treating an exhibition as a job of efficient presentation and display they should call in an expert to help them—someone who understands exhibition technique—as did the committee of the Chinese exhibition last year. The public, moreover, is entirely unfamiliar

with the peculiar and specialized language that the architects' customary water-colour perspectives speak. If the R.A.'s initial resolve to be content with working drawings and the more matter-of-fact photograph had been adhered to at least some consistency would have been given to the show.

The same utter lack of discrimination is shown in other ways: in the amount of material crowded into the exhibition, for example, and in its scope: the method of selection was first by invitation—a notoriously difficult way of getting the right material—and then by a selection committee of eight, who have avoided some of their problems by choosing their own works to an extent of 24 per cent. of the total exhibits. The period it covers includes buildings completed before the war (and even as far back as 1901) which may add to the historic interest—or curio value—of the collection, but makes it even more confusing for the man in the street, for whom cause and effect are inextricably mingled.

So the public is left to wander round unguided, finding enter-

tainment only in debating in its puzzled mind the academic points that the majority of exhibitors apparently accepts as architectural criteria: whether the French flavouring in one academician's elevations is to be preferred to the echoes of our inimitable Sir Christopher in another's; occasionally perhaps finding itself wondering if it is important whether the business of a Post Office is judged to demand Queen Anne "treatment" or neo-Swedish. But the breath of realism hardly turns curiosity to interest.

A word of praise must be added of the retrospective section, which occupies the South Rooms. Showing architects' drawings of the seventeenth, eighteenth and nineteenth centuries, it is intelligently selected and scholarly. As the representation of architecture on paper it puts the fancy-work elsewhere to shame. It contains some drawings as inspiring as anything of their kind. How sad that it is still the past we must go to for encouragement, when the present fills us with despair. In the R.A. the future is hardly to be thought of.

J. M. R.

Book of the Month

Machine-age Primitives

By James MacQuedy

A HISTORY OF THE SOUTHERN RAILWAY. By C. F. Dendy Marshall. London: The Southern Railway Company. Price 17s. 6d. net.

FOR two reasons railway history is a much more than incidental part of the history of modern times. First, because the history of modern progress is largely the history of communications, and the railway boom of the mid-nineteenth century saw communication expanded in the course of a few years at a rate of acceleration never known before. The development of railways epitomizes, as it assisted, the transformation of England in a short time from a largely agricultural, parochially organized self-sufficient community, to one organized nationally, and living several intervals removed from contact with the actual means of existence. Railway transport was to mean, eventually, the end of local autonomy, and the cultural repercussions of this were infinite.

Secondly, the development of railways has a significant place in history because it gave some of the most productive opportunities to

the great race of engineers which sprang up (as if in instantaneous response to a national need) contemporaneously with them. The exploration of the possibilities of the new techniques was what kept the nineteenth century alive. While scholastic arguments about the merits of the styles, and the clash of critical personalities, were occupying the minds of the professional architects, the anonymous unselfconscious vernacular of the eighteenth-century architect-builder still found a nineteenth-century successor in the work of the engineer—bridge-builder, builder of docks, harbours and factory warehouses, and especially of railways.

Similarly in the province of mechanical engineering: the design of machines and vehicles continued to represent a real folk art; anonymous, but imbued with a common character in all examples—a standardized idiom, such as architecture lived by in the eighteenth century. This possession of a standard, this capacity for spontaneous but impersonal architectural thought, survived, indeed, in this

province that diffusive action of architectural irrelevancy that eventually swamped even the tradition of great engineering; and is still evident in the work of the anonymous aeronautical designers and naval architects of today.

Furthermore, the early products of this race of, one may generically call them, vehicle engineers have an æsthetic appeal that their successors, whatever their solid merits, lost; and this is another question that railway history (as a branch of the history of machines) raises. Can we analyse the remarkable æsthetic virtues that we find universally in early vehicles and machines? Can we, particularly, explain the curious affinity between these and the best very modern work; between these and the idiom of the modern æsthetic as it is only now beginning to be distinguishable?

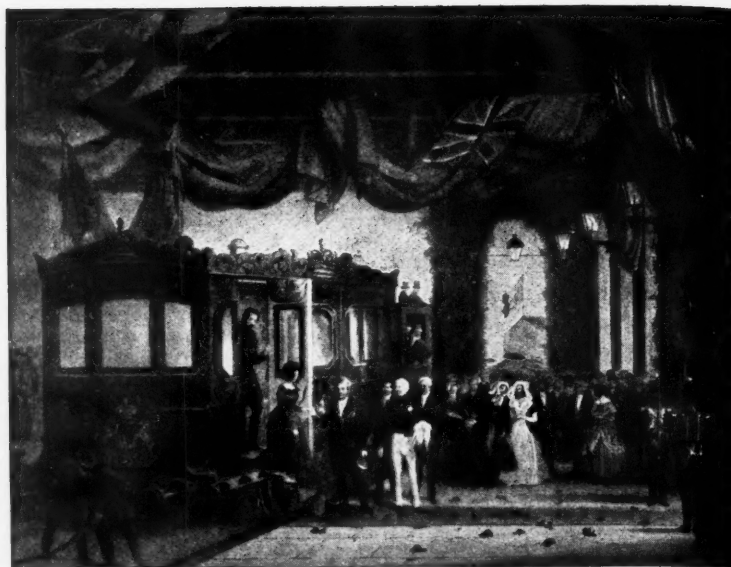
Of course these primitive machines, early railway engines, experimental flying machines, the first steam buses, the first paddle-boats, have a *period* appeal, and their period is one we are particularly sympathetic with (and sentimental about) at this moment. Moreover, the way we see them depicted, in contemporary lithographs and engravings of particular charm and innocence, enhances our delight in them. We can find this period appeal in any spontaneous folk-art of the same period—in coronation mugs or woolwork pictures. But in the machines there is a more objective quality. In some miraculous way these pioneers, instead of producing the clumsiness one might expect in anything in its primitive stage of development, reached at once an exquisite preciseness, a refinement, of form. It seems as though some instinct brought them a miraculous immediate solution that today we can only arrive at after endless improvement and modification. Or was it only that, with no precedent to work to, no prejudices to conserve, nothing to lose by courage and everything to gain, they had less hesitation in attempting the maximum structural elimination; and their singleness of purpose is reflected in the formal integrity of their products? The fact remains, anyhow, that, in working out the alphabet of our contemporary machine æsthetic, we can hardly find better examples of the virtues and characteristics we associate with it than, say, the tensile vitality of the Bristol Suspension Bridge, the tenuous lightness of the Wright brothers' flying machine or the simple elegance of the *Great Eastern* steamship. This quality must be, to a certain degree, directly derived from the primitive spontaneous creative approach: we find the same fine quality, hardly since recaptured, in the photographs of Fox-Talbot and Octavius Hill.

The railway contributes its quota to this proto-modern gallery, and in his book Mr. Dendy Marshall illustrates some charming prints and drawings of railway scenes and products notable both in this and the "period" category.

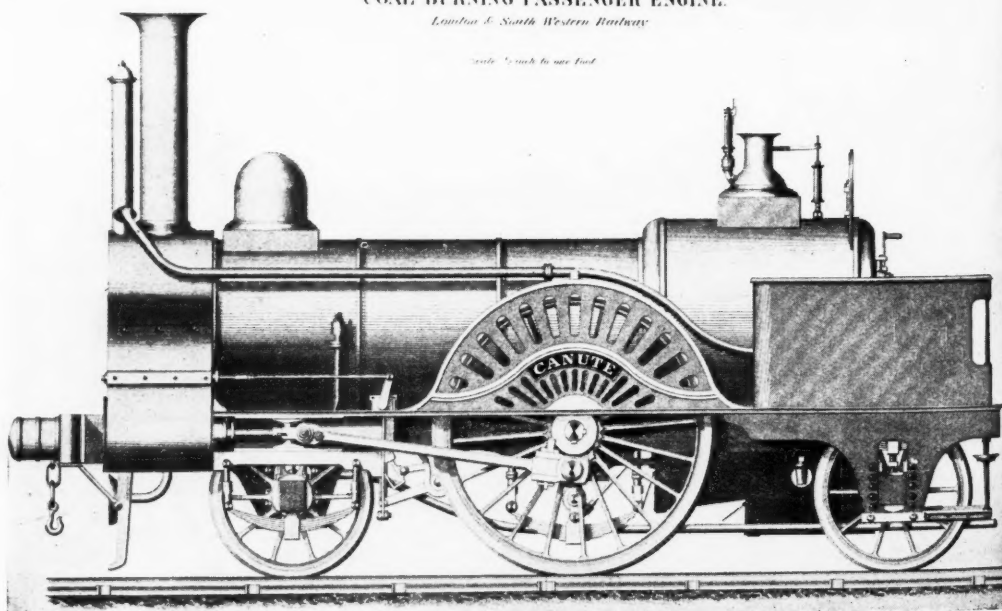
Mr. Marshall does not discuss ideological questions, either in their social or æsthetic aspect; his is a simple history of fact. But it is a very comprehensive one. It is a most painstaking and scholarly achievement and an invaluable book, completing, as it does, the history and documentation of the whole railway system of this island.

The history of the Southern Railway contains little of the high drama that the other lines can look back on; such as the heroic race to Scotland between the east and the west coast routes, or the remarkable career of Hudson, the "Railway King." Nor had the Southern (or, more strictly, the several systems that amalgamated to form it) the distinction of employing

1, the *King of the French* at Gosport Station; 2, the Royal Party, including Louis Philippe and the Prince Consort, in Queen Victoria's saloon carriage; two contemporary prints of Louis Philippe's visit to England, October, 1844. 3, the "Canute" engine, designed by Beattie for the South Western Railway in 1856. 4, view of a train of Prosser's patent Guide-well Carriages traversing a curve and descending an inclined plane on a wooden track; 1845. 5, arches over the Surrey Canal on the London to Greenwich Railway, the first London line; opened December 1836. 6, Arrival of a workmen's train at Victoria, March 1865. From "A History of the Southern Railway."



COAL BURNING PASSENGER ENGINE.
London & South Western Railway





4



5



6

any of the really great engineers: Brunel, the Stephensons and their like. But the story of its growth is not without considerable interest, some of which derives from the fact that the first public railway in the country, the Surrey Iron Railway, opened in 1803, was part of the system, some from the fact that daily suburban traffic was an important element from the very beginning, and some from the part played in the story by the rise and rivalry of the cross-channel ports. If they employed few geniuses these railways can boast a number of eccentrics (or fanatics, whom we, in the light of subsequent experience, can label eccentrics) such as the men who enthusiastically defended the "atmospheric" principle before Parliament, in opposition to that of the steam locomotive—though it is interesting that Brunel himself, at one time, defended this principle. And notably the odd Dr. Lardner, author of the "undulating principle" of railway planning, which was based on a confident theory that it was unnecessary to flatten out natural gradients since, with constant power, reduction of speed going uphill would be exactly compensated for by increased speed coming down. This same gentleman was considered one of the chief scientific authorities of his day, in spite of his having proved that it was impossible for a steamer to cross the Atlantic only a short time before that was accomplished.

As everywhere, the manner of growth of the south-of-England railways was not by the extension and branching of a trunk system in new directions as it was wanted, but by the simultaneous or successive construction of innumerable small independent lines which amalgamated gradually to form the present incoherent network. Indeed, the interesting fact emerges that several railway lines were built as speculations by financial undertakings who *had no intention of running them* (or organization for doing so), but counted on one of the existing companies feeling compelled to take them over.

It is a pity that Mr. Marshall has not shown himself a little more aware of relative values and brought a slight critical examination to bear on his data. He could by doing so have greatly enhanced both the sociological and architectural usefulness of his book. He describes the present Waterloo Station with the same complacent respect as the wonders of the pioneer engineering. The architectural side, in fact, is weak; complete lists of the names of Directors of the railways and of Traffic Managers and the like are given, while the names of the architects, for example, of the station buildings (or in most cases any description of the buildings) are missing. The strongest side, probably, is that dealing with locomotives; all types and classes being listed and described and a great many illustrations given, including some beautiful ones in colour. The documentation is complete. There are still many provinces of early scientific endeavour awaiting the same scholarly collation of their facts.

Handbook on Heating

HEATING AND AIR CONDITIONING OF BUILDINGS.
By Oscar Faber & J. R. Kell. London: The Architectural Press.
Price 25/- net.

There could be no clearer evidence of the increasing complication of the work of an architect than the necessity for such a handbook as this. Even within the memory of those practicing today, heating for quite important buildings and for all offices and flat blocks depended upon the provision of open fires. Ventilation too was a simple matter, windows could be opened and occasionally, where large assemblies of human beings were to be

expected, a roof cowl with a gas jet under it was all that was necessary.

Today, there is a surprising variety of heating and ventilating plant available, and in the last few years even the provision of complete air conditioning has become sufficiently common to make it necessary for architects to consider the desirability of including for such services in a great variety of different types of building.

It is probable that nowadays the architect will not himself work out the exact details of a heating or ventilating scheme of any great size, but he must be in a position to make a logical choice between the different systems available, the different fuels available and as to the necessity or otherwise of any provision for partial or complete air conditioning.

Such decisions can only be made on the basis of a sound knowledge of the capital and running costs of various systems and of the approximate space required for the plant, the ducts and the pipes.

This book is the first to give any help to the architect on these lines and must prove an essential textbook both for those in training and those in practice. It is written in relatively simple language although some sections must inevitably prove a little difficult to follow for the non-mechanically-minded. A number of problems which are rarely if ever tackled in print have been thoroughly explored; there is a chapter setting out the relative costs of the various fuels—a subject on which it is almost impossible to obtain unbiased information, and there is another unusual section dealing with the question of thermal insulation on strictly economic grounds.

While it is probable that the real value of the book is in the help it will give to the architect, it will certainly become a standard textbook for the heating engineer. Much of the information contained in it has of course already been published in one place or another, but there is probably no English textbook which has gathered together so much technical data in such convenient form.

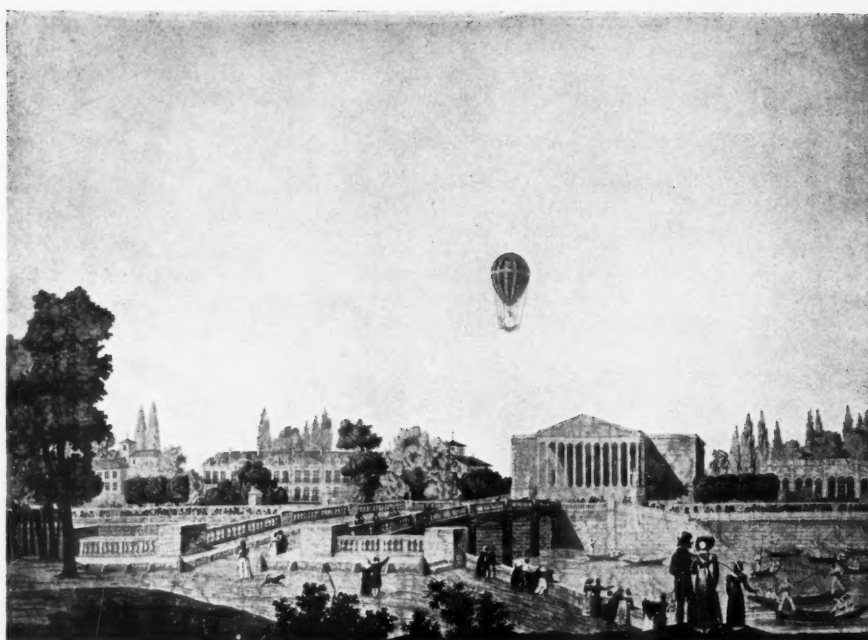
Recent research into the physiological aspects of heating and ventilating has profoundly affected our views on the subject, for it is only in the past few years that it has been realized that the actual air temperature of a room is only a partial guide to the comfort conditions obtaining in that room. The original work of Sir Leonard Hill after the War and later the work carried out by Dr. Margaret Fishenden and Mr. A. F. Dufton has made it clear that we must also consider humidity, radiant heat, and rate of air movement as well as the actual temperature of the air. There is a full account of the present position of this work in the early chapters of this book, but it is probable that when the time comes for another edition this will have to be even more fully considered. So far very few practical heating men are yet making contracts based on the eupatheometer or any other of the still slightly unsatisfactory methods of measuring comfort conditions as opposed to actual air temperature, but this must come in due course.

Of course in simple buildings the air temperature and eupatheometer or kata thermometer readings will under normal circumstances be very much the same, but when we come to crowded chain stores, places of public entertainment and similar buildings in which comfort conditions become an urgent necessity, there may be perfectly adequate air temperatures and a normal number of air changes, without a completely satisfactory installation considered from the comfort angle.

In the same way, the air conditioning section which now completely covers current practice in this country, will probably have to be expanded in a few years' time, so fast are conditions changing. By then it will perhaps be possible to know how far present research on the subject of comfort conditions and air conditioning can become the basis of practical work.

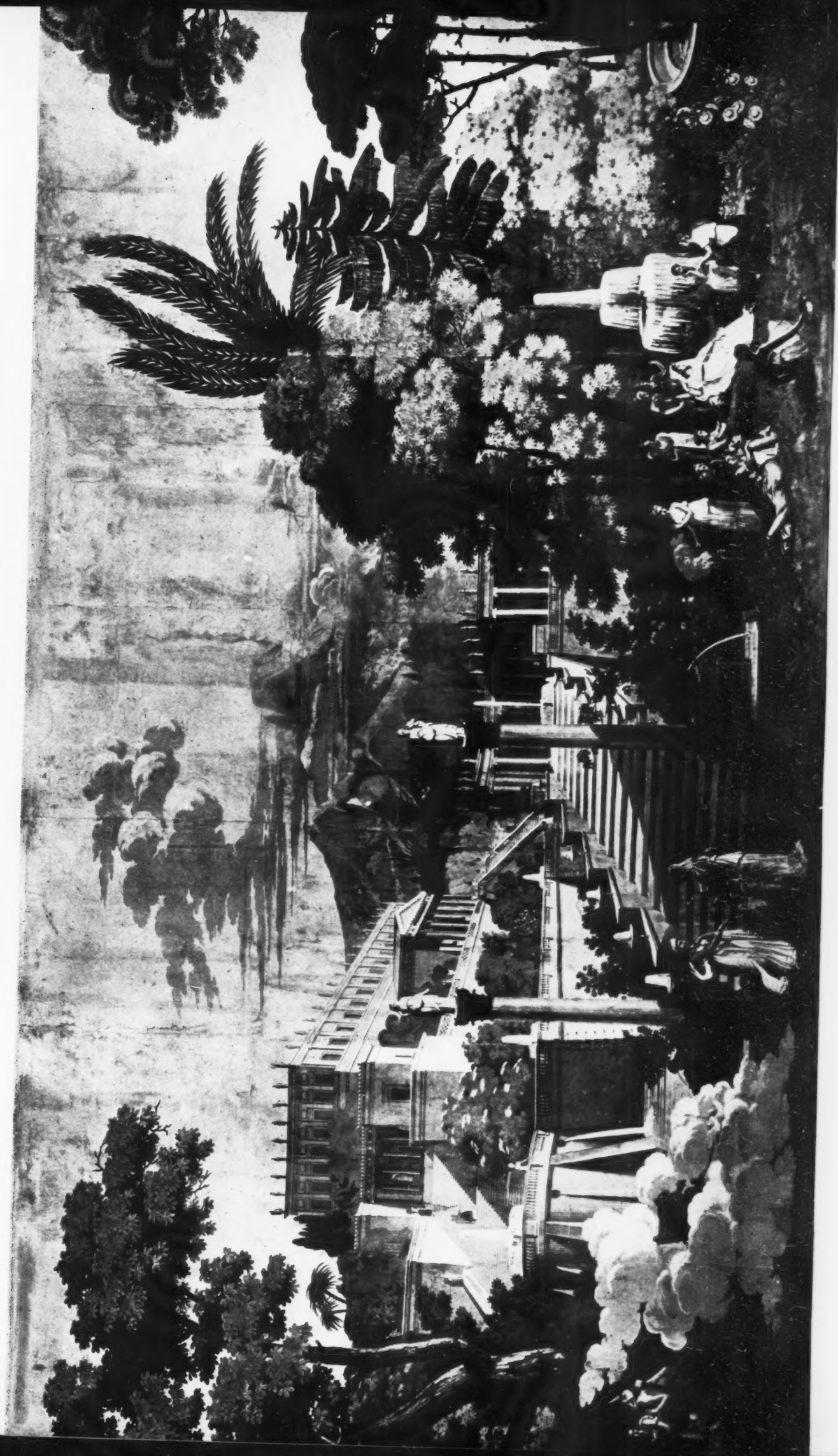
The volume is excellently produced with an adequate index, but unfortunately contains no bibliography, which in the case of the present subject would be of considerable value.

J. K. WINSER



The exhibition of French scenic and panoramic wall-papers held last month at 53, Berners Street (Messrs. Sanderson's galleries) was unique. It was selected from the Carlhian collection, the most important of its kind, even more so than the only public collection, that in the German wall-paper museum at Cassel, and is on its way to Philadelphia, to the Pennsylvania Museum of Art. The collection covers the period from about 1795 to 1835. Although the papers were produced in France during the Revolution and the wars of the Empire they were exported freely, to England and especially to America, where surviving specimens are still found. Each complete panorama consists of from a dozen to more than thirty pieces, or narrow vertical lengths, which were printed by hand from wood blocks. Most of them are in full colour, requiring in some cases thousands of blocks for each example. The upper illustration shows a portion from a paper entitled "La Fête du Roi aux Champs-Élysées." It is complete in twenty-five lengths in colours, and was probably produced at the beginning of the Restoration (1815). The portion reproduced shows a view across the Seine, including recognizable portraits of several of the buildings: on the left the Hôtel Masséna; in the centre the Chamber of Deputies. Above is Madame Blanchard in her balloon. The lower illustration is a detail from the paper "Views of India," published also in 1815; the design is attributed to Dufour. Twenty-five lengths in colours complete the scene in which tiger-hunting on foot, on horseback or on elephants occupies a great part. The portion reproduced shows a group of English people watching a sacred dancer, with Hindu monuments and temples in the background.

P A N O R A M I C W A L L - P A P E R S



OVERLEAF: *AT CLOSE RANGE*

From the exhibition of scenic and panoramic wall-papers, held at 53, Berners Street, London : a section of wall-paper from the panoramic sequence entitled "Telemachus on the Island of Calypso," printed by Dufour about 1825. The whole sequence comprises twenty-five lengths, in full colour. The subject is the adventures of Telemachus in search of his father, Ulysses, as they were described by Fénelon in the book he wrote for the education of his pupil, the Duke of Burgundy. The section reproduced shows a scene on the island, on which Telemachus and Mentor are shipwrecked. Venus is seen arriving in her chariot. The exhibition is selected from the Carlhian collection (see also page 84).

PLATE III, February 1937

DECORATION

THE ARCHITECTURAL REVIEW SUPPLEMENT

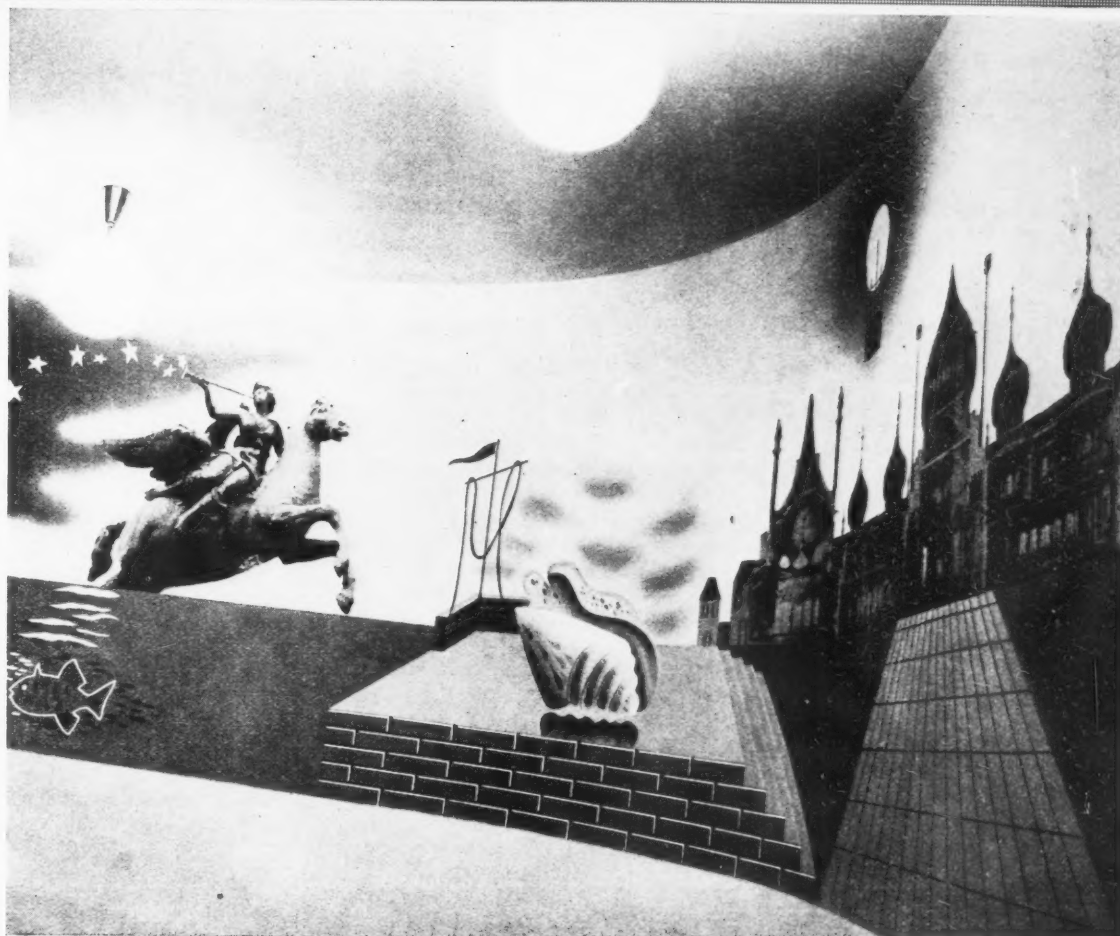
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THE TRUE PHOTO-MURAL:
A NEW TECHNIQUE OF
DECORATION

BULLETIN OF STAN-
DARD DESIGNS

COLOUR AND METHOD
BY OZENFANT

The first experiment with the new photo-mural decoration technique (described and illustrated overleaf) was made in the entrance hall of Embassy Court, Brighton; Wells Coates, architect; E. McKnight Kauffer, designer. Executed by Mollo and Egan, the inventors of the process.



THE TRUE PHOTO-MURAL : A NEW T

This new process of mural decoration, which can now be said to have passed the experimental stage, has its chief virtue in that the design is projected direct on to the wall surface. The surface is first sprayed with photo-sensitive emulsion, and the photograph printed on it much in the same way as an ordinary camera enlargement. It is subsequently developed and fixed by a spray. The decorating must, naturally, be carried out in complete darkness. The development of the working technique under these conditions and the perfection of an emulsion that would give equally good results on a variety of wall surfaces were among the problems the inventor, Mr. Eugene Mollo, had to solve. An advantage of the process, over the ordinary one of enlarged photographs printed on paper, is that the decorations can be printed on any kind of rough surface, or even on one in relief.



AS THE ARCHITECT SEES IT . . .

The invention of photography helped artists to find new ways to paint, and new reasons for painting. The development of decorative styles of architecture robbed the painter of an important branch of his art—mural painting, and he began to paint "easel" pictures further and further removed from the subject matters commonly required by the scale of murals.

Photography, having no place in "easel" painting, has been developed in poster and display work by "commercial" artists, who are, I think, properly speaking mural artists working in small frames (or "easels"). The photographic technique developed by Mollo and his associates brings to mural decoration new possibilities, in that the images may be printed

direct on to wall surfaces of any desired texture or contour.

This medium appears to demand the services of an artist skilled in the control of abstract form and colour combined with the real-ness of photographic images and the relief of part-sculptured contours. Such an artist will not be "too grand" to allow his design to be reproduced by experts: craftsmen in fibrous plaster, in spray-painting through stencils, in photographic printing, and in artificial illumination.

WELLS COATES

. . . AND AS THE DECORATOR SEES IT

From my point of view this amazing invention is not revolutionary but a very natural extension

of the camera as experience. Mural decoration, as we know, has come to a dead end both in subject matter and in surface texture. If the heroic is desirable in decoration we can now project the documentary evidence to any scale required. Hardly any surface can resist photo-mural technique. Rippled, fluted, convex, concave, plaster, wood, metal, glass can be impregnated with this technique, applied so directly to the material that surface and picture become part of each other.

Pictorial "reporting" with the camera has now developed a wide interest in the various activities occurring in daily life. News reporting, scientific and microscopic photography, have revealed new and astonishing experience for the eye and imagination, and all the easy and quick registration that the camera can give should be used as part of modern decoration. It is the world we live in.

The designer should in no way be subordinated by the mass of material now under his eye. In fact, much more is now demanded of his talent; since it is for him to select and combine his material from a wide range of subject matter, surface textures, colour and colour treatment, exaggeration of scale, conflicts in pictorial interest dynamic and subtle, all depending upon the project. The range is wide, extending between the effects of splash headline dramatics to the quiet ease of a flight of birds or a classic head.

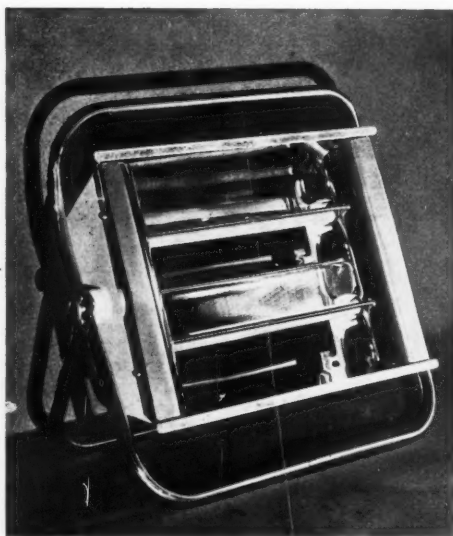
Surprise as an element in decoration is a factor which keeps the space alive, and in photo-mural technique the contrast between the painted line, pattern or symbol and the documentary photograph enlarged to fantastic scale and again designed for different materials, offers unlimited prospects to the imagination.

This medium now so ably handled by its inventors is the mural decoration of our time, and through this process we can extend our experience into new worlds of pleasure, surprise and wonder.

E. McKNIGHT KAUFFER

BULLETIN OF STANDARD DESIGNS

"Albion" portable electric fire. Chromium plated reflector; tubular frame and side panels finished in chromium plate; back finished in black, dark brown, french grey, beige or middle green enamel. One unit (1 kw loading), overall size 13 ins. high, 16½ ins. wide, 7¾ ins. deep back to front, weight 5 lbs., price £1 6s. 0d. Two unit (separately controlled: 1 kw or 2 kw loading), overall size 14 ins. high, 16½ ins. wide, 7¾ ins. deep back to front, weight 9 lbs., price £2 2s. 0d. Heatrae, Ltd.





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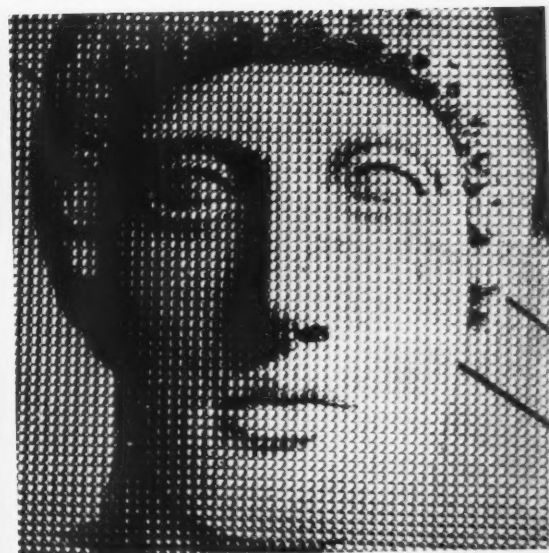
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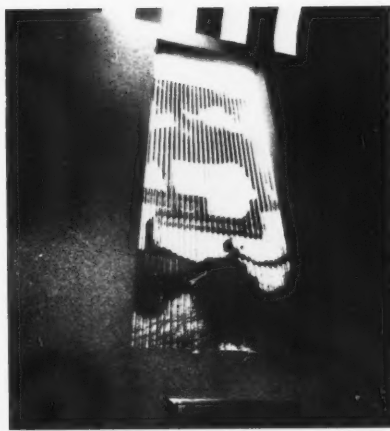
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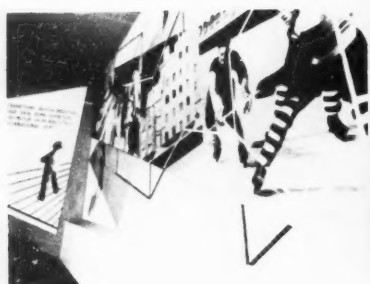


9

To suggest the possibilities that lie in the capability of this new photo-mural process of being applied to various textures and materials, the same classical head is here shown photographed direct on to seven different surfaces: 1, corrugated aluminium; 2, corrugated paper (twice photographed, so as to give a cross-checked effect); 3, corrugated asbestos; 4, "heraklith" (fibrous insulating board); 5, ribbed glass; 6, plastic paint (with a sprayed texture); 7, "pinhead" glass.

Two examples of the process in application: 8, in the entrance hall of a block of flats, Embassy Court, Brighton (see also page 85); Wells Coates, architect; E. McKnight Kauffer, designer of the decoration. 9, in the cinema of Lansdowne House, London; an abstract design on fluted fibrous plaster; Wimperis, Simpson and Guthrie, architects; Mollo and Egan, decorators. Other examples are shown overleaf.

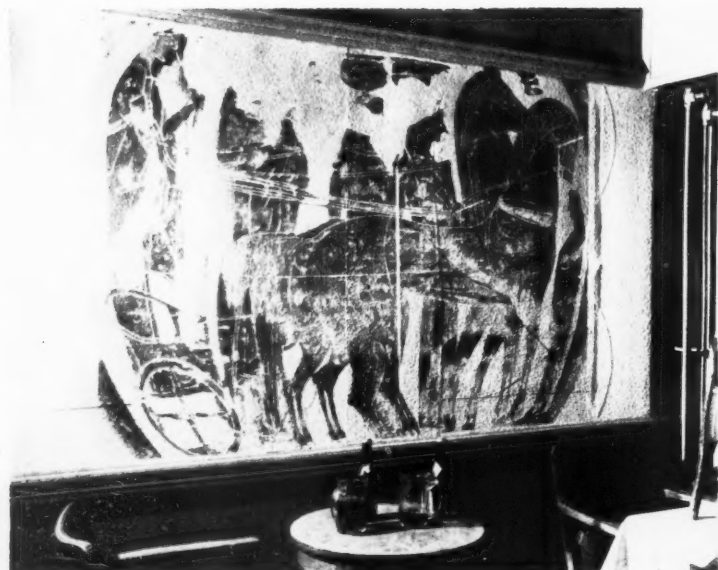
T H E T R U E P H O T O - M U R A L



10



11



12

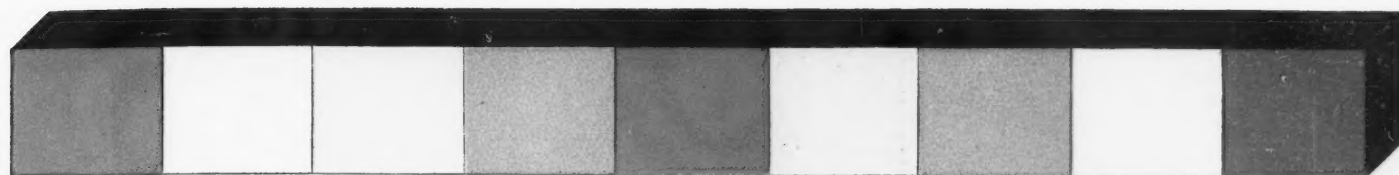


13



14

The technique of printing photographs direct on to a sensitized wall surface show in a variety of applications: 10 and 11, for exhibition work; portions of a recent exhibition at Charing Cross Underground Station, designed by E. McKnight Kauffer to advertise the new Earl's Court Exhibition Buildings. 12, in the bar at the Victoria Coach Station; a large wall-panel based on a Greek vase motif. 13, in the entrance hall of an office in Fitzherbert House, Park Lane. The office belongs to a film company and the plaques represent some of the cinemas the company owns. 14, a decorative panel in the new Curzon Cinema, Brighton; a still from the film "Things to Come," a series of which are used to decorate the entrance hall; James Morrison, architect. All this work has been carried out by Messrs. Photographic Spraying, Ltd., a subsidiary company of Mollo and Egan, architectural decorators and inventors of the process. All photographs also by Photographic Spraying, Ltd.



COLOUR AND METHOD

By O z e n f a n t

The architect is a poet. He must be a poet. Poet in form, colour and light. The three in one: the architect.

Only, through constantly seeing colour in the painter's pots, and also owing to the nasty tricks these coloured brews have often played on him, he sometimes ceases to realize and feel all that is marvellous in the physical phenomenon of colour. It is true to say that most of the world lives without noticing the extraordinary fairy-land that the world is. And when man forgets the miracle of things, he ceases to be an artist.

That is why, even if a clear notion of the action of light and colour had no practical application to the architect's purpose, I would still draw a picture of these, so thrilling are their ways. This action is so astonishing that it is capable of raising us above stupid *habit*—this dangerous habit, which, according to the great Samuel Butler, and also Bergson, has contributed so much to the formation of our animal side, but which conceals from our mind and our heart the real and everlasting beauties of the world. Habit never allows us to discover, or even to do better than we already know how to do. And it is never a waste of time, whatever trade we are engaged in, to contemplate with careful regard the natural wonders, particularly when they have a bearing on our trades. Architecture is light, because it is through light that we see it. And light is colour.

Buying a pot of paint for sixpence at Woolworths is a gesture which does not greatly benefit our intelligence and our sensitiveness—but, what an insight into the universe, when we think that the brew which this pot contains, is a *filter* of light! Light is but a radiation of the same nature as X-rays. This light is the visible part of the stupendous electro-magnetic wave system, which “explains” a great deal of the generality of appearances. Therefore, taking the job of painting a wall: it is no longer a vulgar occupation—it is to practice the alchemy of waves.

And furthermore, if the most delicate electrical phenomena can be registered in *figures*, there is no more need for respectful nervousness as regards colours; let us register them also in figures, instead of going on translating them into imprecise descriptions. Words are not made for that purpose.

But, first of all, we must define the terms which we will employ.

A colour is defined by:—

First, its *hue*; that is to say, the *quality* which is its own, and which differentiates it from another colour.

Secondly, its *value*; that is to say, the *quantity* of light it transmits.

The sun, lamps, are *prime sources*. Colours may be considered as *secondary sources* of light.

Pigment is the powder of colour.

Binding is the substance which incorporates it, fixes it, and makes a usable colour of it.

According to the nature of its substance, the *pigment* transforms, *filters* the light it receives, before reflecting it.

Except in the case of a practically white body, bodies only reflect a portion of the light; and often a very small one. That is a very elementary truth! And is that the reason why too many architects forget this childish c-a-t—cat; in a country like this, where daylight is often rare? Many architects and decorators seem to take a mischievous pleasure in painting walls a dark colour, in providing prisons for the light. And, what is worse, these dark colours are chosen so neutral, that the *hue* cannot compensate, through the liveliness peculiar to bright shades (even if they are dark), for the loss of light by absorption.

And here is the opportunity to emphasize—and we will return to the point again—that smallness in quantity of light, can to a certain extent be remedied by the brightness of the hue of the colour; as bright hues, even dark ones, have the property of creating strong sensations, similar to those caused by a large luminous quantity.



Once more, as always, the function of the white.

Practical conclusions: one; in the case of lack of light (climate or architectural condition), bring in white and lively exciting colours.

Two; make it a habit, when observing or thinking of a colour, to distinguish between the *hue* and the *value*. It is well to acquire the habit of forming a clear idea—sufficiently clear to be retained in the memory—of the characteristic *hue* of colours, their irreducible personality, their *individuality*; and also of experimenting with the *values* of colours, by comparing them with a very white paper. This will make it easier to remember, and to take into account in designing, the factor of *quantity* of light in relation to white, that is to say, the effect that colours will produce with the white of the ceiling and the white portions of the rooms.

One easily assumes that the notion, *quality-hue* of colour, is proportionate to the *quantity-value* and also to the *quality-hue* of the light which illuminates the colour. Of course, under the yellowish light at the end of the day, or under that of ordinary lamps which are very rich in yellow, a green, for example, will appear more yellow than at noon, when sunlight is richer in blue rays. And these are facts to be remembered, because, according to the country, account must be taken of local conditions, when working out the architectural harmonies. But, when trying to take into account these local conditions, it is important not to err on the wrong side. For instance, how came this abundance of yellowish facades in London? Under the sun (rich in violet and blue rays—facades are hardly ever painted except in fine weather) they are cheerful enough; but during the dark days they appear dull, of a rancid butter yellow; whereas the whites sing gaily, because they generously reflect practically the whole of the light; and these whites appear all the brighter when their surroundings are darker: and the sombre colours, by contrast, become beautiful and telling. *London requires linen collars.*

The old London architects provided whites. Why have they been almost totally abandoned? The new architects intended to fight against foggy greys, and give a sense of sunlight by yellowing the whites. But in the sun yellows sing; in the shadow they are silent.

These errors are also due to the fact that people do not generally think of the manner in which light acts, in order to produce colour. Everyone knows that the so-called white light is composed of a very great quantity of waves of various hues, vibrating at different frequencies. The number of vibrations per second characterizes each pure light-hue. The sum of all these vibrations, that is, of the various-coloured elementary lights, constitutes what is called white light.

But few people are accustomed to think of any material colour as a *filter* retaining all the coloured vibrations, with the exception of those which it reflects, and the hue of which characterizes the particular colour. It is important to keep this law well in mind when colours are ordered and mixed. An example: a corn-poppy and a poppy-colour powder appear poppy-red, because the texture of the petals of the poppy, and the poppy powder, absorb all the other colours of the spectrum of so-called white light, and only reflect the red and the yellow, the combination of which creates the impression of poppy-red.

The leaves on the trees appear to be green, because they retain all the radiations from the sun, with the exception of the green. Magnificent lawns enliven England with green, because the chlorophyl sets its traps for the sun rays. The same applies to all coloured bodies. Material colours, therefore, are wave filters.

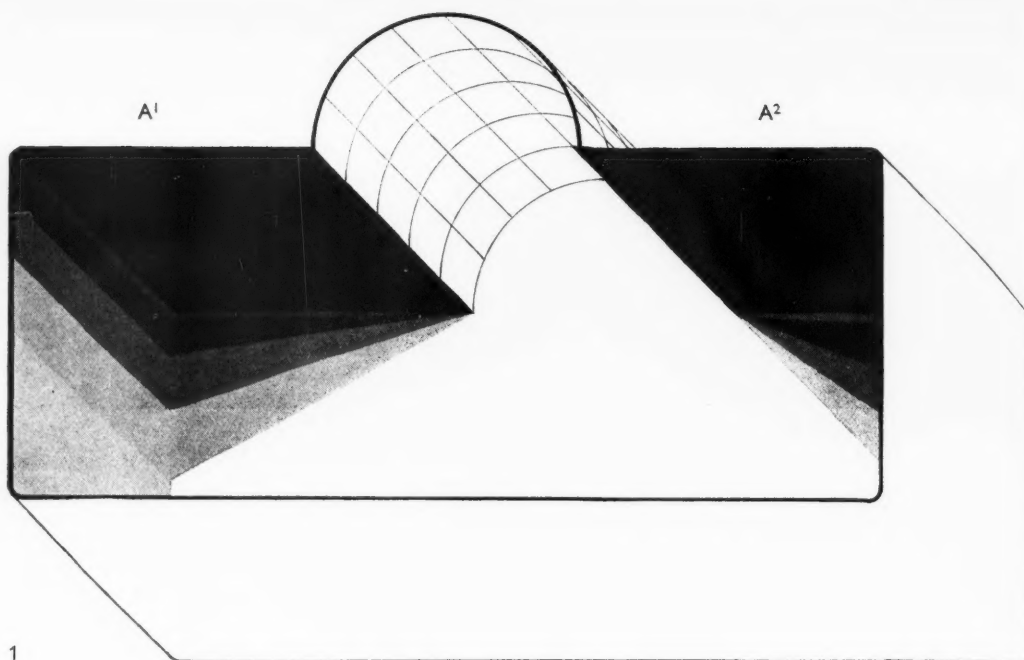
Now, we are all taught at school that if you mix a green with a red (so-called complementary colours), you will obtain a black, or at least a blackish colour. The "complementary" red and green, orange and blue, yellow and violet, are supposed to delight in comradeship but to kill each other in marriage . . . (which, as we sometimes discover, is a slander). In reality, if you mix a light vermilion with a certain light green, you will obtain, not the expected dirty shade promised by this theory, but a very true yellow, which seems absurd and contrary to the theory. But the theory of complementary colours, such as it has been for a long time propounded in schools, did not take *realities* sufficiently into account: in this case, the complicated phenomena of spectral absorption by coloured powders.

Taken alone, orange vermilion absorbs all the coloured radiations constituting the light, with the exception of the yellow rays and the red rays, the mixture of which appears orange colour when it is alone; yellow-green absorbs all the rays, with the exception of yellow rays and certain blue rays, which it leaves free and reflects in a green mixture. But, when combined the two colours—orange and green—act as follows:—

The orange pigment catches the blue rays which the green pigment allows to escape; only yellow and red, therefore, are reflected by this pigment; but green pigment absorbs the red rays which the orange allowed to go free, and thus, by the action of the two pigments, light, after striking their mixture, is reflected in yellow.

This is only a simplified outline of the phenomenon. It is in fact even more entertaining, because the eye is subject to aberrations: for instance, one hue sometimes affects

(continued on page 92)



If there is not enough light the proportions do not properly play their part; or they may even be entirely falsified. If the light is badly directed and distributed it is the same thing.

In the case of the room illustrated here, 1. the light distributes itself approximately as shown. The walls A1 and A2 are in shadow, and will appear even more so because of the contrast presented by the brightness of the large colour bay window. The larger the windows, the shadow in general, the darker will appear the auxiliary walls in shadow either side. This is the green often seen in modern architecture. green; If the architect can include a demi-cylinder (or similar shape) in white or a red in a very light colour, the "respiration" of the volumes will be much better. 2 and 3 show the behaviour of light as reflected by a reflector. R. This method illuminates the walls A1, A2, B1 and B2, and will diminish the contrast between the lightness of the window and that of the walls adjoining. The shadow will become a luminous "penumbra." People, furniture, pictures, will be presented in light, and surfaces and forms will acquire the relative transparency in the shadows. By this found in photographs taken on the best best panchromatic plates. The vibrating shadows that one admires, for example, in a Greek temple, is never absolutely black, but is "transparent." (These are the notes of the author.)

COLOUR: FORM: LIGHT. Colour is able forcibly to assist the compensating effect of light on proportions and volumes. It can be seen in 2 and 3 how the values and the hues have been chosen with a view to the quantity of light differently received on the different walls. The scheme for this room has been worked out as follows: First, the values: A1 and A2, clear value because these walls are the least illuminated. B1 and B2, medium value because these walls are moderately illuminated. C1 and C2, darkest value because these walls are most

ost. 3ea

ost. 18ec

ost. 23nc

white reflector, R

Divan : ost. 7na
Ceiling : white
Curtains (ochre) : ost. 2ec

2

B¹

A¹

A²

B²

C¹

C²

R

3

Drawings by R. Jensen
(from sketches by Ozenfant).

ht the
play
ven be
ght is
it is

and here.
approx-
and illuminated. All these are effects of
or even compensation.

st pre-Secondly, the hues : A¹ and A², warm
e large colour to counteract the cold effect of
ndoes, the shadows. B¹ and B², blue ; the
ear the auxiliary of the yellow that makes
This is the green of C¹ and C². C¹ and C²,
re, green ; resulting from a mixture of
demi- the yellow and the blue.

hite of a red divan, to make the green "sing."
ation" A reflecting surface of white (giving
better, maximum luminosity) ; and also to
f light deepen the green by contrast, a
This method that avoids deepening the hue
B², too much : this would absorb too
contrast much of the light.

indow The white ceiling plays the part of a
. The grey. The pale ochre curtains serve
inous to link the yellow and the green.

iture. In 2 are shown the developed surfaces
light, of the different walls with, therefore,
quire the relative quantity of the hues.

adoces By this method of compensation and
on the by this combination of values, lines

The and contrasts, the room will be airy,
mires, the light well balanced, and the form of
ole, is it solid without heaviness of colour.

trans- (These have been questions of actual-
ity ; we will discuss the aesthetic
our is choice of colours later, in dealing
with the psychology of colour.)

s and The angles of the room are rounded.

and 3 The junction of walls and ceiling in a
e been rounded angle helps the flexibility
antity of the light by avoiding hard lines
on the between them.

or this These examples show how FORM,
llows : LIGHT and COLOUR should constitute,

, clear in the mind of the architect, one
e least indivisible whole, when he is engaged
edium on the design.

terate- The figures on the drawings indicate
larkest the notation of the colours according to
most the Ostwald system.

nerves which specialize in other hues. But this summary is sufficient to reason with; and anyhow, this way of looking at it is already far less faulty than the usual theory.

Few architects, however, have spent the necessary time in acquiring the habit, by reasoning and experience, of foreseeing more or less the colour which will result from the mixing of different powders. Therefore, at the moment when he is endeavouring to "materialize" his colour scheme (assuming that he has a clear idea, which is rare, of what he wants) he witnesses the most disappointing results. Everyone has noticed, with astonishment, the strange magics, the paradoxical colours, disclosed at the bottom of the painter's pot, when he has been asked to prepare a colour: "You know, a green something like this"; a rose "like that," "a yellow not too yellow."

And the architect waves his hand in the air, his eyes half closed, in a dream.

The poor devil of a painter would have to be a medium to be able to guess what is going on within you. Generally, he is nothing more than an honest workman who endeavours to understand you. So, the colour is never what it was desired to obtain. And weariness overtakes you, before you have obtained the desired colour; a colour which is sometimes felt, but hardly ever defined, even in the mind of the architect.

Much worse: it will happen sometimes that, while making absurd mixtures (that may sound like practical jokes) a pleasant tone is produced by miracle; in reality quite different from that which it was intended to obtain. And as the tone is an appealing one, it is eagerly accepted. The original idea has been abandoned and architecture is again the result of chance. And this was the moment when the utmost precision was necessary. Yes, the architecture is the outcome of miracles. Do you believe in miracles in architecture?

We have just said "precision." Though the form of architecture needs to be precise, we must admit that, in the matter of dimension, a certain allowance can be made in the precision of form; for instance, in a large room, a difference of two or three centimetres is not a very serious matter. In spite of the tremendous progress of modern architecture, the latter is still far from having reached the degree of perfection of the temples of the Acropolis, in which the precision in measurements is of the order of one millimetre. But, as regards colour, our modern eye is very precise and exacting. No doubt, it has been much refined by certain kinds of painting in the nineteenth and twentieth centuries, which have played an important part in the development of modern sensitiveness, and by the fact that modern painting is based on colour refinement. The tremendous progress of colour printing, of posters, the high level of fabric dyeing, the

expert selections of dress-making, have made the modern eye extremely sensitive; our eyes are perhaps even more sensitive to colour than those of the ancients. As a result, the least departure from the exactness of a colour is noticed and can compromise the whole architecture of a building.

Therefore, our eye has very precise requirements—but the means of satisfying them are left to the most complete absence of precision.

During the past thousands of years means of measurement have been evolved, such as the metric system (from one centimetre to one millimicron) enabling any measurement to be taken with the utmost precision. But, for colour, we still do without any "scale." It is true, paradoxically, that it is precisely for the study of light that the most admirably accurate instruments, spectroscopes, have been invented. They have helped in discovering the structure of the universe and the composition of the stars; their speed and the speed of light . . . But these instruments, so ideally accurate, have been hardly used at all in connection with the questions we are discussing here; that is, those relating to material colours. The spectroscope, though it has been employed to study in the most accurate fashion the composition of coloured light; though it has enabled us to give a characteristic number to each of the very numerous pure colours, of which light is composed; though it enables us to check the composition of the light reflected by material colours, is of no practical use in the hands of architects. It is an instrument for verification, for identification; it is not a constructive instrument.

It must be emphasized that its function is entirely different when dealing with spectral light, from when it deals with light transformed by material pigmentary colours. Example: the mixing of pure hues from luminous sources has a tendency to produce white, whereas the mixing of the same hues, but of coloured powders, has a tendency to produce black. This is natural, since in the case of direct light the effect comes from addition, whereas in the case of lights reflected by pigments, it comes from subtraction.

A great scientist, who was also a great practical man, the physicist Chevreul, Director of the Gobelins tapestry works in Paris, recognized, nearly a century ago, the necessity of preparing a chart, composed of samples of hues, answering the needs of those who use colours.

Until the eighteenth century, the Gobelins tapestry makers dyed the yarns from a range of 115 hues (each one bearing a descriptive name). Some of these names are charming: for example, the range of blues consisted of the following: "blue-white, nascent blue, pale blue, fading blue, darling blue, celestial blue, Queen's

blue, deep blue, Royal blue, wood flower, dark blue, Aldego, hell blue."

Chevreul writes in one of his works: "If the colours used at the Royal Manufacture of Gobelins formerly formed constant ranges, since 1825 these ranges tend to disappear." But, at that time, a real decadence of the art of tapestry was apparent. The artists were working by chance, plunged in the infinity of colour. The most admirable tapestries of the Middle Ages, such as those which may be seen at South Kensington, and particularly the incomparable tapestry to be seen in one of the churches in Brandenburg, in Prussia, were composed of about a dozen shades, not more! So, the artist could easily think out the colours, and the tapestry maker apply them.

If we recall these details, it is not as an historical note, but, since our aim here is to arrive at practical methods, because they embody a whole teaching, now generally lost. The ancients perfectly understood that it is only possible to play in tune on an instrument which is itself in tune, and not too complicated. The admirable piano only has 96 keys, and that is already a great deal. What would be the good of a piano with an infinity of keys?

Chevreul established a *Chromatic Circle*. He selected from the solar spectrum the hues then reputed to be "complementary," opposed two by two to each other; that is to say, the mixture of which should theoretically produce black. Then he systematically added to each of them, and to their mixtures, a progressive quantity of black; that is to say, of obscurity. Unfortunately, he committed the error of relying too much on the spectroscope. And again, the limited range of printing colours at his disposal a hundred years ago did not enable him to prepare a truly practical chart; that is, a sufficiently exact one. But Chevreul was, to our knowledge, the first one who tried to create a practical working method.

And still today, the architect is content to be, from the point of view of colour, in a comparable position to that of an architect who has no scale for measuring form.

But, happily, it is only through ignorance that he remains in this inconvenient and dangerous situation, because, at present, there exists a colour chart—not a perfect one to be sure—but one which has at least the merit of being relatively true. It is the first practically usable working tool for colour.

How many architects use, or know the existence of the OSTWALD CHART? For my part, I do not know one who uses it.* We must leave the study of this tool and the way of using it to our next article. Also the way it can be perfected to serve the needs of the architect and the decorator.

* A note in my article last month may have suggested that the chart is in constant use on the Continent. I meant that the Ostwald Chart is of continental origin.

My good Yorkshire friends

My good Yorkshire friends, you asked me down here among your hills that I might talk to you about this Exchange you are going to build: but, earnestly and seriously asking you to pardon me, I am going to do nothing of the kind. I cannot talk, or at least can say very little, about this same Exchange. I must talk of quite other things, though not willingly;—I could not deserve your pardon, if, when you invited me to speak on one subject, I wilfully spoke on another. But I cannot speak, to purpose, of anything about which I do not care; and most simply and sorrowfully I have to tell you, in the outset, that I do *not* care about this Exchange of yours.

If, however, when you sent me your invitation, I had answered, "I won't come, I don't care about the Exchange of Bradford," you would have been justly offended with me, not knowing the reasons of so blunt a carelessness. So I have come down, hoping that you will patiently let me tell you why, on this, and many other such occasions, I now remain silent, when formerly I should have caught at the opportunity of speaking to a gracious audience.

In a word, then, I do not care about this Exchange,—because *you* don't; and because you know perfectly well I cannot make you. Look at the essential conditions of the case, which you, as business men, know perfectly well, though perhaps you think I forget them. You are going to spend 30,000*l.*, which to you, collectively, is nothing; the buying a new coat is, as to the cost of it, a much more important matter of consideration, to me, than building a new Exchange is to you. But you think you may as well have the right thing for your money. You know there are a great many odd styles of architecture about; you don't want to do anything ridiculous; you hear of me, among others, as a respectable architectural man-milliner; and you send for me, that I may tell you the leading fashion; and what is, in our shops, for the moment, the newest and sweetest thing in pinnacles.

Now pardon me for telling you frankly, you cannot have good architecture merely by asking people's advice on occasion. All good architecture is the expression of national life and character; and it is produced by a prevalent and eager national taste, or desire for beauty. And I want you to think a little of the deep significance of this word "taste"; for no statement of mine has been more earnestly or oftener controverted than that good taste is essentially a moral quality. "No," say many of my antagonists, "taste is one thing, morality is another. Tell us what is pretty; we shall be glad to know that; but we need no sermons, even were you able to preach them, which may be doubted."

JOHN RUSKIN

Extract from a Lecture delivered in the Town Hall, Bradford.
[The Crown of Wild Olive: George Allen]

Burlington House and the Press

We publish below a selection from the views of the various newspaper critics on the British Architecture Exhibition at Burlington House. What sort of reception the organizers anticipated one cannot of course, say. But the exhibition is declared to be for the enlightenment of the man in the street, so it is the layman's, not the house-proud architect's, opinion it must stand or fall by; and the nearest we can get to an expression of lay opinion is the columns of the newspapers that claim to represent it.

"The story of British architecture in the 20th century is, alas, largely one of missed opportunities. Never before have so many buildings been pulled down and so many new ones erected."

"And the result? Instead of having had old mistakes corrected, the haphazard growths of former centuries transformed into scientific and harmonious development, we have all the ancient disorder plus horrors like ribbon mushroom villas and shops along arterial roads."

"A large exhibition of contemporary British architecture at the Royal Academy underlines that sorry failure."

"Government and local authorities are partly to blame, but the mass of British architects has not got beyond the stage of the student who, after years in libraries, ruler in hand, can produce superficially clever versions on dead-and-gone themes."

DAILY MAIL

"A fair description of it would be to say that it illustrates with remarkable completeness and consistency a view of architecture which is not universally accepted and is likely to be less so in the future."

THE TIMES

"We all know, alas! what we have lost during the twentieth century, and we come hopefully to this exhibition to learn what we have gained. It would appear that the gain is chiefly one of material convenience. Schools are more hygienic, we gather, hospitals are better lit and more efficient. Tenements have improved sanitation, and are better equipped for household work and infants' recreation. This, no doubt, is all to the good; but there are moments when I wonder whether victory does not rest with the plumber rather than with the architect."

SUNDAY TIMES

"It is not easy to find a reason for the Royal Academy Exhibition of British Architecture."

* * *

"The Exhibition is divided into two sections—one 'Retrospective,' the other presumably modern."

"This division needs underlining, in case an uncary visitor leaves the galleries with the impression that the whole exhibition is retrospective."

* * *

"The few clean, modern buildings by young architects are stamped by dusty scourings from the offices of venerable heads of the profession."

"Only occasionally does a sensible, simple design stand out—like a white face in Central Africa."

NEWS CHRONICLE

"The home-seeker will find much to interest her at the Exhibition of British Architecture open at the Royal Academy until March 6th."

"In the domestic section, where small houses are

shown, there are all types and styles for both town and country."

"Perhaps the best, from the expense point of view, since it takes up less ground, and from the picturesque, is the modernised Queen Anne type of house (similar in frontage to the King's House at Burhill)."

* * *

"If you have plenty of ground on which to build, the Tudor or Jacobean style, with its courtyard and sheltered garden, is picturesque, and can be followed out in detail with beams and old-fashioned brick hearths."

SUNDAY DISPATCH

(And if you have a great deal of ground you might try modernised fourteenth-century castellated.)

"Anybody who likes dolls'-houses will enjoy this: there are quite a lot of detailed models—of Westminster Cathedral, of blocks of flats, of the excellent Pavilion at Bexhill, of the County Hall."

"Unfortunately, exhibits hung on walls mostly show buildings more fit for habitation by dolls (in period clothes) than by humans."

"Catalog-Preface claims show is 'comprehensive' and 'representative.'"

"I am afraid it is—tho' it is a little malicious of the R.A. to have hung quite so much genteel neo-Georgian and quaint old rustic stuff."

"I should have liked fewer postage-stamp-size sketches huddled together, more vastly enlarged photographs covering whole walls; fewer 'modernistic' designs, more modernity."

"Architects' impressions of their own buildings are usually too optimistic: they give an effect of colour, sunlight, cleanliness which makes the grey rain-drenched, sooty reality, disappointing."

DAILY EXPRESS

"This exhibition may go some way, I suspect, towards making us all critics of architecture, as we ought to be in a country with so long and noble a tradition, especially in domestic architecture."

EVENING NEWS

"There is comfort for the despondent in the Royal Academy's exhibition of British architecture through the centuries. The exhibition demonstrates in small

compass what the streets of London demonstrate in great. That is that the best British architects of today do not suffer by comparison with the great British architects of the past."

MORNING POST

"I have one complaint ordinarily of all the rooms. Only the architectural room is devoted to architecture. This time they might have kept it the exception by hanging it with other than architectural exhibits. Just on going in there I felt the one subject becoming a little overpowering."

EASTERN DAILY PRESS

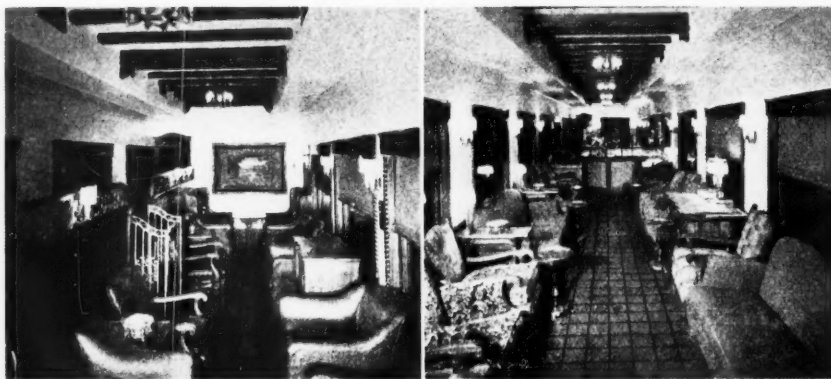
"Some of the best work has been put into public-houses. Nearly all of them, whether they are suburban palaces or small country inns, show the tendency towards providing refreshment in the open air which is such a feature of Continental life."

MANCHESTER

EVENING NEWS

A FUGITIVE FROM A CHAIN-STORE

"A reference to the finances of Woolworths in this column last week brings



"The Sunshine Special' of the Missouri Pacific Railways joins St. Louis and Mexico City. As far as San Antonio these new 'Spanish Mission' style lounge cars run on the train. The oak roof beams are a novelty in railway coach construction."

MODERN TRANSPORT

S T A T U E P A R A D E

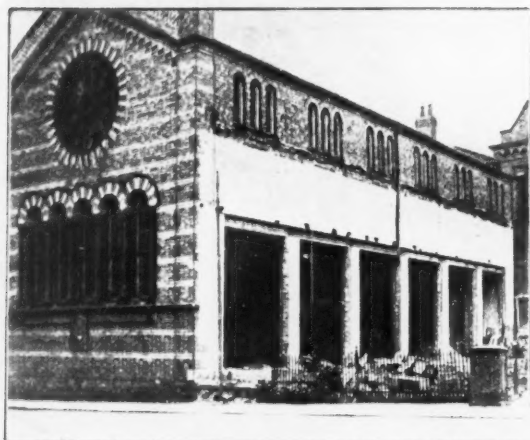


The above photographs are taken from Paul Rotha's film "Statue Parade." The massive marmoreal females, chastely silhouetted against the fretted Gothic sky-line will instantly be recognized as some of those madly symbolic figures who have for so long had the good sense to turn their backs on the central portion of the Albert Memorial of which they form the outer bulwarks. The vast bronze foot has, for close on thirty years, been poised ready to grind the faces of the poor, or for that matter the rich, who might be so daring as to bathe in the fountains of the Victoria Memorial.



a suggestion that is well fraction of their very sub- red and gold is familiar enough. But in the main worth discussing. Has it stantial profits in definitely throughout America as well thoroughfare of an English ever occurred to these great embellishing the roads and as throughout Britain, and country-town—I can think businesses — Woolworths, streets where they establish in the midst of the hetero- of many examples—it is Marks and Spencer, Boots, themselves? As it is they geneous architecture of, say, little less than a disaster, and the various multiple cultivate a resolute uni- the Tottenham Court Road. As a matter of fact, you can grocers—to use some small formity. The Woolworth it passes muster well get uniformity completely

MODERN TREASURY — VI.



YORK'S NEW FIRE STATION, FORMERLY A CHAPEL.—Work in progress on the conversion of the former Peck Street Chapel into an additional fire and ambulance station for York.

satisfying from the artistic point of view that fits in anywhere. Messrs. W. H. Smith's bookshops are a case in point. The various establishments in question serve many needs, and serve them well, but they might properly consider whether it would not be worth while to earn themselves the reputation of invading no town-ship without adorning it."

THE SPECTATOR

While heartily agreeing with the sentiments expressed in the above column, one would like to make some small emendations in the division of the sheep and the goats. Messrs. Boots, whom the writer counts among the latter, actually deserve the place among the former allotted to Messrs. W. H. Smith. The more recent of their shop-fronts are quite admirable and worthy of general imitation. The "script" lettering traditionally associated with this firm, while not in itself attractive is obviously of great commercial value, and the difficulty of reconciling it with the architectural surrounds of the modern shop-fronts, has been

cleverly overcome by treating simply as a symbol—such as Mr. Therm, or the signature on a bank note.

The premises of Messrs. W. H. Smith on the other hand, despite the Gill-designed monogram, are however, only interesting period pieces, recalling happy memories of Mackintosh, cape gooseberries in beaten copper pots, and the garden suburbs of 1912.

Moreover, the *Spectator* has left out the worst offenders of all the Louis Quinze façades of Lyons' tea shops which obtrude in innumerable London and provincial streets.

ODDS AND ENDS

"This bungalow is the product of Mr. Claude Atkinson, of London. Artist by profession, he is also cartoonist, advertising expert, and—what concerns us more—in his spare time he haunts scrap heaps and rubbish dumps, brings home oddments like ginger beer bottles, old rubber tubing, jars, camera spools, battered biscuit tins, and out of his amazing mixture of things at which we could

never look he produces a perfect bungalow."

EVENING NEWS

Animated Architecture

There was recently shown at a London cinema a quite excellent coloured cartoon called "The Fox Hunt," the work of two little-known artists. The great merit of this picture lay in the fact that it is the only coloured cartoon that has so far appeared which has not been an inferior copy of Disney; in his own line the master is unapproachable and it is a great relief to find someone who has realized this and evolved a new and quite different technique. But its chief claim to originality is the skill and imagination with which the architectural background is treated; the endless terraces, statue encrusted, of the vast country house, the infinite perspectives of red-roofed housing estates, the sweeping coils of the arterial road, all these play as large, and as funny, a part in the action as the fox, the huntsman and the other animated characters. Moreover, like most good jokes, it implied a criticism and therefore had an additional value. You can appeal to people's common-sense, morality and public spirit till the cows come home and they will still go on building, and buying, the products of the speculative builder and bypass clutterer; if, however, you appeal to their snobbery by emphasizing the comic aspects of these twentieth-century hire-purchase paradises, a day may dawn when Baronial Palaces Ltd. and the Impermanent Building Soc. Inc. will be forced to go into liquidation.

THE ENGLISHMAN'S HOME, 1937: OR BACK TO THE BARBICAN

"I have read with interest letters published from time to time on the subject of different roofing materials. The following points seem worthy of consideration. Firstly, blue-grey slates are practically invisible from the air, compared with red tiles and similar material. This is important in these days of danger from air attack."

From a letter in the COLNE TIMES

As one gathers that the spreading power of the new gases is so great that the entire population will perish anyway, one would suggest for the benefit of posterity, if any, that in all those districts which private enterprise and legislation have both neglected for so long, it should be forbidden to employ slate for roofing and that where it exists it should be painted as conspicuous a colour as possible.

Love in a Valley



Take me, Lieutenant, to that Surrey homestead;

Red comes the winter and your rakish car.

Red among the hawthorn, redder than the hawberries

Or vine trailing bryony and noisier far.

Low lies the homestead, looking over Coudon;

White down the valley curves the living rail;

Tall, tall above me, olive spike the pinewoods.

Olive upon blue black, moving in the gale.

Deep down the drive go the cushioned rhododendrons.

Deep down, sand deep, drives the heather root;

Deep the spliced timber barked around the summerhouse.

Light lies the tennis court, plantain underfoot.

What a winter welcome to what a Surrey homestead!

Oh! the metal lantern and white enamelled door.

Oh! the spread of orange from the gas fire on the carpet.

Oh! the tiny patter, sandalled footsteps on the floor.

Fling wide the windows! there's a Surrey sunset!

Far down below, sings the Addiscombe train.

Lead paned the windows, lozenge-ing the crimson.

Drained dark the pines in resin-scented rain.

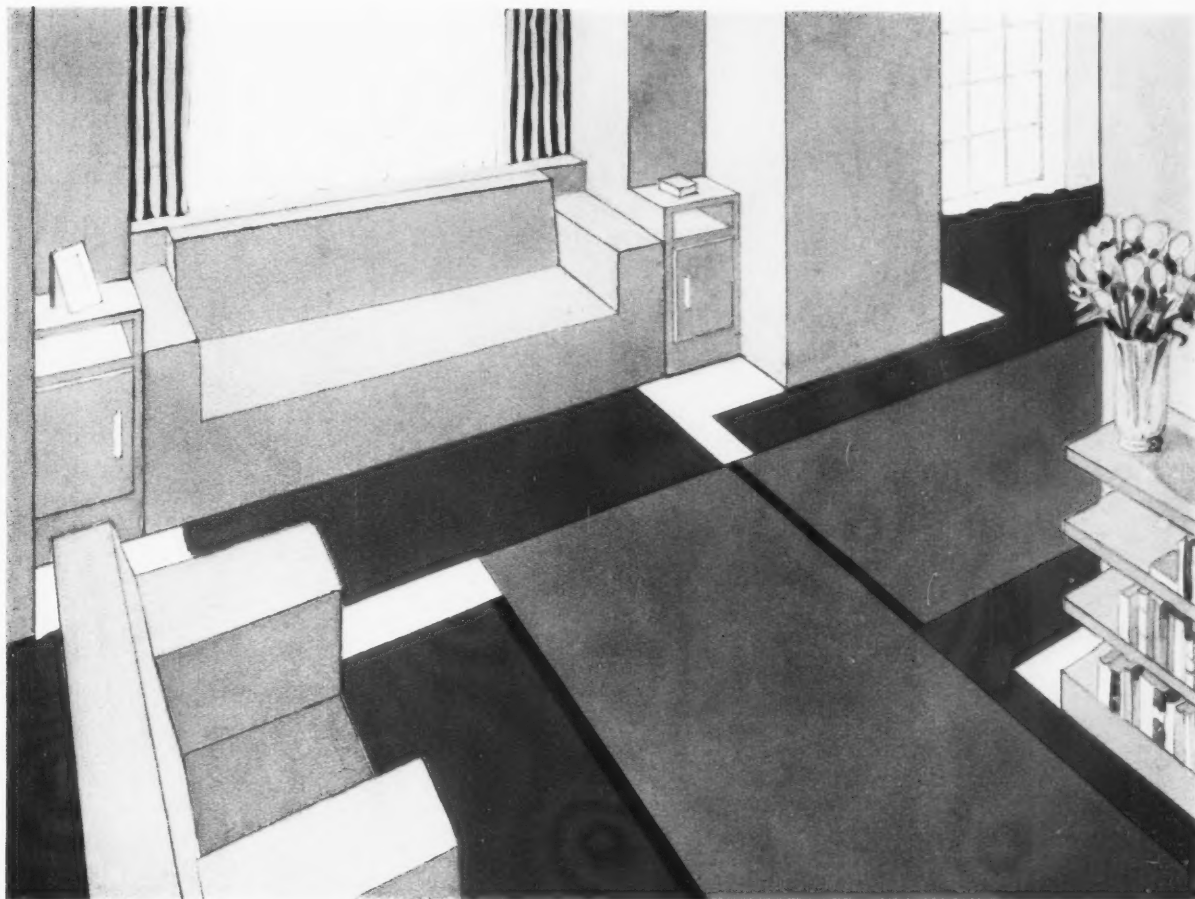
Portable Lieutenant! that they carry you to Burma

And me to lonely shopping, in a brilliant arcade.

Firm hand, fond hand, switch the giddy engine

So for us a last time is bright light made.

HEATHER MEREDITH
DORKING



The design of the carpet is the keynote of this design for a living room by Mr. Stewart Thomson, A.R.I.B.A.

The striking effect is obtained by the use of Firmoda carpet, and this is only one example of how this carpet can help the Architect in the development of his theme.

Firmoda carpet is made in strips in a wide range of colours. By joining together pieces of various colours an infinite variety of original designs may be created. The joins are perfectly flat and the finished carpet appears almost seamless.

Firmoda carpet fits snugly into curves and angles, so that rooms of unusual plan may be close covered and the effect is the same as if broadloom had been used.

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CARPET

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Mount Royal and British Industries House

"... Both are large, both are in brick, but they glare across at each other in most unfriendly fashion."

Trade News and Reviews

By BRIAN GRANT

West-end ordeal

To the average mortal of masculine gender, be he ever so hardy, is there anything quite so utterly terrifying as a "shopping expedition"? He will sit for hours peacefully and contentedly on the hottest of hot summer days watching thirteen languid white-flannel-clad fellow men giving an almost perfect exhibition of complete immobility. He will most cheerfully suffer himself to be pushed and trampled upon by 72,000 odd people whilst thirty stalwarts dash up and down the Twickenham playground in pursuit of an egg-shaped leather spheroidity. He will on the vilest of Sabbath morns take the keenest delight in hitting a wee white ball through a lot of muddy fields and into and out of a lot of strange sand-filled cavities.

All these hardships he will endure gladly. But, be he father, uncle or big brother, see how he will flinch and grow pallid at the suggestion that he should "a bargain-hunting go" or join the family in their annual Xmas tour of the West End stores. Ah no, that is far too stern a proposition for the stronger sex, and at Christmas time in particular it will be found that the great majority of good husbands are too frantically busy

at the office to be able to spare even a half-day off. And the minority, those poor fellows who, having excused themselves for ten consecutive years, weaken at the eleventh time of asking, what a sorrowful picture they present as they tramp from store to store, from department to department. I know, I've seen 'em. Indeed, for six arduous hours on December 22nd of the year 1936 I had the misfortune to be numbered amongst them.

Oxford Street

It was during our perambulations in Oxford Street that my spirits sunk to their lowest depths of depression. What amazing disorder! What a conglomeration of almost all that is bad in urban design! A street entirely without character in which no two neighbouring buildings have the slightest respect one for the other. Oh what a jarring and clashing and jostling there is all the way from Marble Arch to Tottenham Court Road. And the roadway and the pavements, so narrow and inadequate that the progress of those who travel along that route must perforce be as unhappy and unneighbourly as the buildings themselves.

Let us hop on to a bus at the Marble

Arch and drive slowly along. We shall have ample time for soliloquy, for at every 50 yards there are traffic signals and unless we are exceedingly fortunate the red light for danger will, as often as not, bar our progress.

We start on a very "regal" note. As we circle the Arch and join the queue for Oxford Street we have time to examine edifice No. 1, a large restless structure in Portland stone: we are looking at the "Regal" cinema, tho' anything less like a palace of entertainment it would be difficult to conceive. It is, indeed, forbidding in aspect but endeavours to capture an air of classic dignity by flaunting along its frontage a row of eight sturdy columns suspended in mid-air. Its immediate neighbour, the Cumberland Hotel, is almost identical in elevation but very much tidier and boasting only six columns. Then, as the red light flashes through orange to green and we get into our stride, two large structures in brick present themselves—on our left Mount Royal, on our right British Industries House. Both are large, both are in brick, but they glare across at each other in most unfriendly fashion. Mount Royal is streamline and twentieth century, almost the only modern looking



"Some soap, some water, and a towel, please Miss Perkins."

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building in the whole length and breadth of Oxford Street.

Then follow, to right and left, a varied assortment of lesser buildings—all sizes, all shapes and finished in a variety of materials, until we reach the monumental largeness that is Selfridges and stop to register the correct time from Mr. S's amazing gilt timepiece. Then more variety, mostly pre-war I believe, until two large shoe stores of fairly recent vintage remind us that the building industry has not lain completely dormant in these past ten years.

From Davies Street to the Circus it is best to keep one's eyes strictly left (with an appraising glance for the old D. H. Evans building, sane and unpretentious)—to the right is chaos—and as we cross Oxford Circus itself we take a quick peep down Regent Street and heave a sigh of regret as we think what might have been in that street of lost opportunity.

From the Circus to Tottenham Court Road we get a further selection of "architectural allsorts," with the old familiar Waring and Gillow building predominating on the left flank, and on the right the tall perpendicular black granite edifice wherein Mr. and Mrs. Everyman hold their daily and delightful conversations with the ever benevolent Mr. Drage. Here, having no desire to be

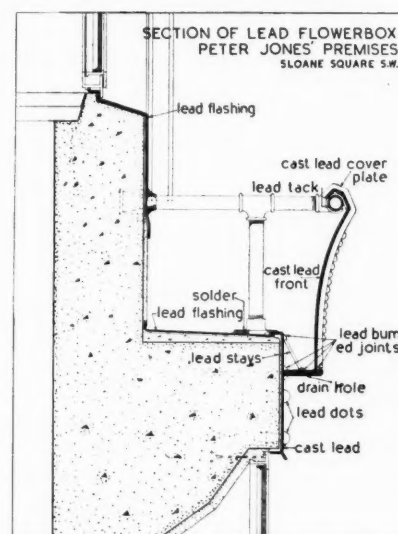
carried farther into the wilderness that is New Oxford Street, we will alight.

Of London's modern shops two are outstanding—Simpsons store in Piccadilly, noticeably sensible and contemporary; and the new Peter Jones in Sloane Square which sets a standard of straightforward urban design that, in disorderly London, badly needs to be maintained.

An interesting feature of the Peter Jones building is the treatment of the display windows. By cantilevering from internal stanchions all the front wall as well as the canopy over the pavement, the architects have provided an uninterrupted range of windows round the whole base of the building with a minimum of obstruction.

Design for flowers

On my last visit to P.J.'s I was given some interesting details regarding the construction of the cast lead flower-box which, situated immediately above the display windows, will extend right round the building and will be approximately one thousand feet long. The box is supported on a skeleton of tubular copper and will involve the use of nearly



See also the photograph of the flower-box on the next page.

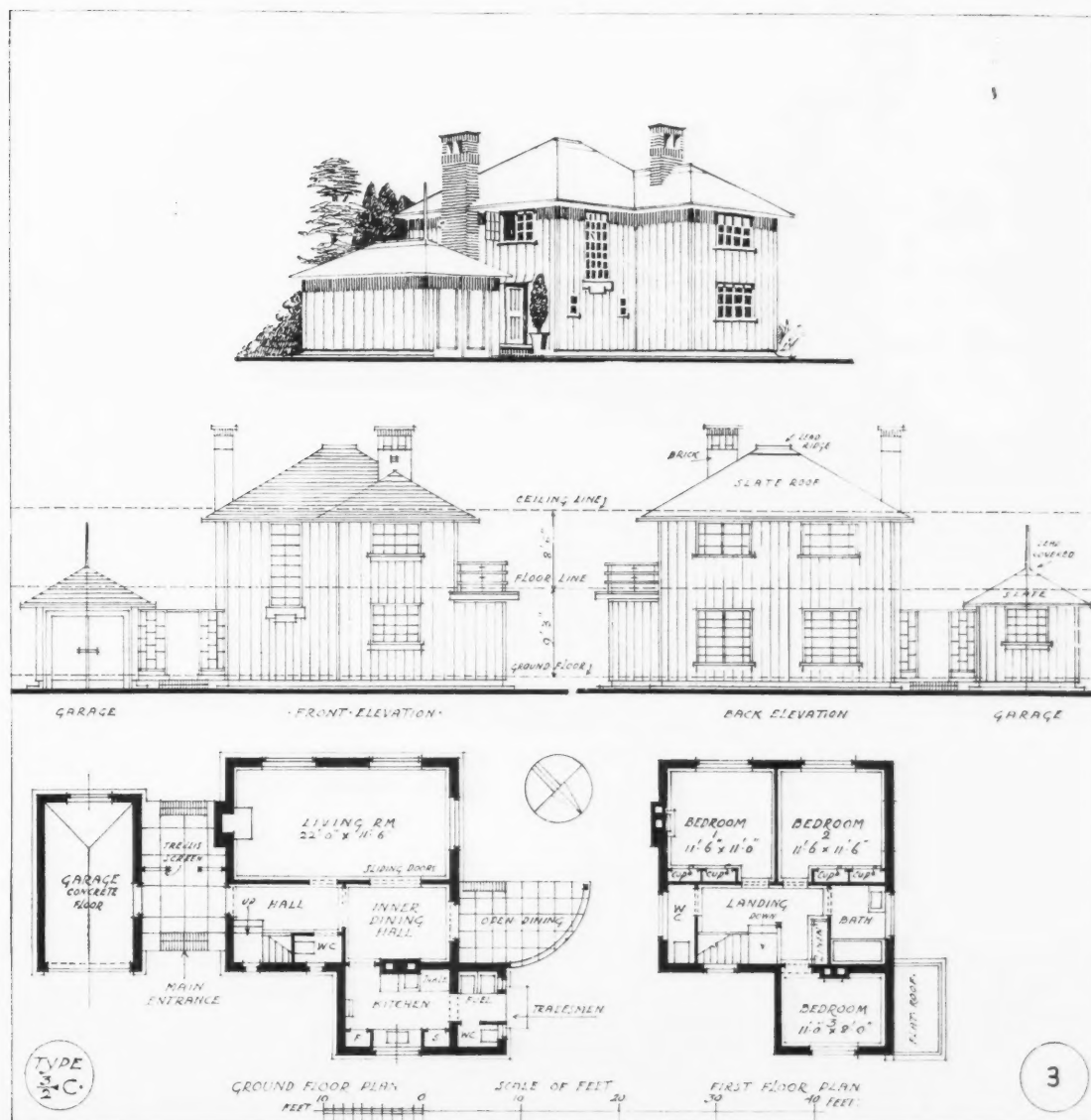
one thousand five hundred feet of copper and sixteen and a half tons of lead. The lead has been rendered stiff by being alloyed with a percentage of antimony and other hardening agents as well as a small amount of silver to increase its wearing qualities. Owing to the great length of the work, provision has had to be made for the expansion and

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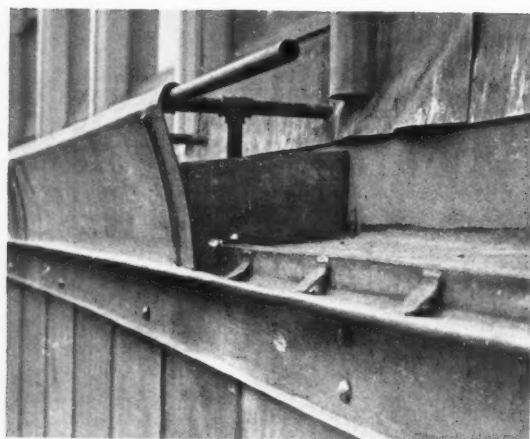
FOUNDATIONS: Portland Cement Concrete raft trench in under main walls and chimneys. **WALLS:** 5" x 2" Fir framed and braced, studding covered with building paper and rebated Western Red Cedar, weatherboarding hung vertical, lined inside with plaster board or plywood, internal walls 4" x 2" ditto, lined plaster board or plywood, garage walls and ceiling lined with fireproofed plywood. **ROOFS:** Framed in 4" x 2" rafters with 4" x 2" collars, 6" x 3" purlins covered with 3" rough boarding battens and green slates or shingles. Soffite to eaves finished in plaster board. **CHIMNEYS:** Brick in cement compo,

with 3" York stone cap and brick on end set to form flue openings, all flues formed with 9" outer skin and 4 1/2" divisions. **WINDOWS:** Deal casements hung to deal frames, all divided with glazing bars. **INTERNAL JOINERY:** Deal, painted, external doors ditto. **EXTERNAL TREATMENT:** All weatherboarding left natural, windows and doors painted, and concrete base, etc., sprayed to match.

Issued by the Timber Development Association Ltd., 69 Cannon Street, London, E.C.4. Telephone CITY 2714. You can get facts about alternative wood for this kind of construction by writing to the Technical Director of the T.D.A., at the above address.



T.A.12



Photograph taken during construction. The flower-boxes are very deep and wide. Note sloping bottom to lead water to drainage holes.

contraction of the metals through variations of temperature; this is being effected by providing expansion joints in the lead every eight feet. The joints are hidden behind cover plates which have been so constructed that they can be removed at a future date and designs worked into them. The moulding of the cast lead sheets is being done by craftsmen on the site. In addition to the tubular copper framework many thousands of lead

dowels are being used to ensure that the flower-box shall be securely fixed to the concrete cill. The Forge Ltd. have been entrusted with the making of the flower-box, the constructional details being by Austin Crompton Roberts in conjunction with the architects.

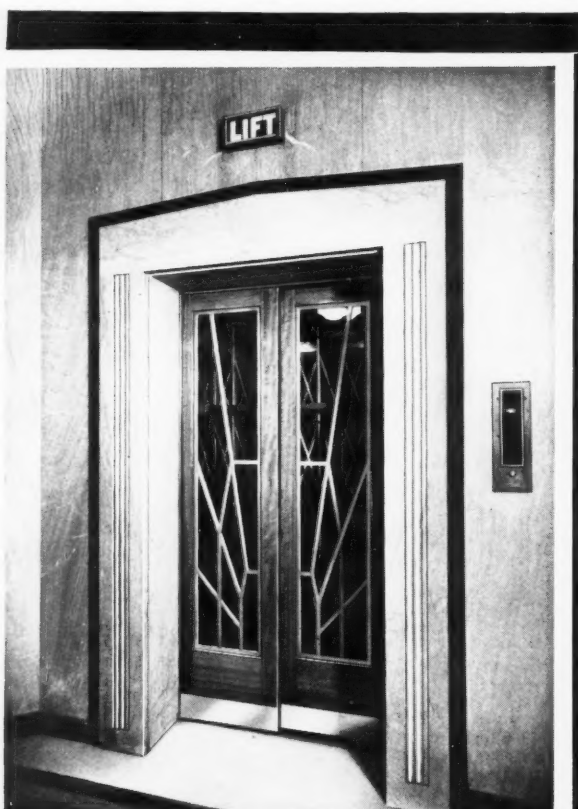
constant gas pressure, an automatic control for constant oven heat, and an automatic lighter. The dimensions are as follows:—

	H.	W.	D.
Oven inside ...	18½"	19"	18"
Oven door opening ...	15"	17½"	—
Height to hotplate ...	36"	—	—
Height over cover when open ...	57½"	—	—
Hotplate ...	—	21½"	21½"
Overall dimension of cooker...	57½"	24½"	24½"

Design for Cooking

In the modern labour-saving kitchen every thing is streamline, and kitchen planners and users will welcome the new Parkinson gas cooker. As can be seen from the accompanying photograph it is a straightforward workmanlike piece

of equipment, free from tedious embellishment and with no awkward corners to collect dirt. All the surfaces are white vitreous enamel and when the cooker is not in use the splash back can be closed down, thus providing extra working space—an important consideration in these days of kitchenettes. The oven door is hinged at the bottom and when open forms a convenient rest for dishes. The cooker is fitted with a governor for



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Photograph by courtesy of H. J. Manzoni, Esq., City Engineer and Surveyor—Birmingham.

Dockers' Hermator Gloss Paint was used for all external paint work on Britain's most modern Fire Station.

**MODERN
BUILDINGS
NEED MODERN
MATERIALS**

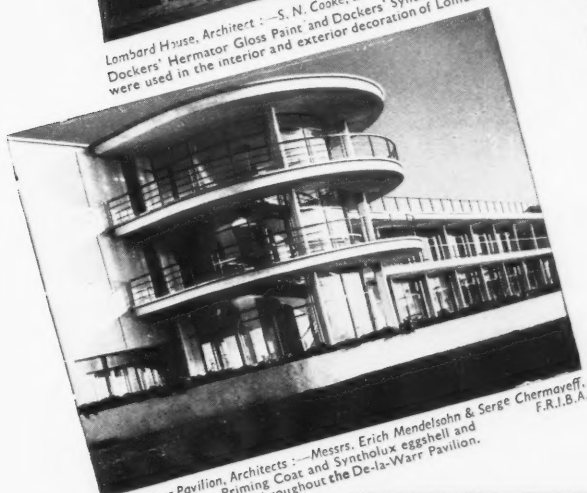
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Dockers' Hermator Gloss Paint and Dockers' Syntholux glossy finish were used in the interior and exterior decoration of Lombard House



Architect :—T. Cecil Howitt, Esq., D.S.O., F.R.I.B.A.
Dockers' Hermator Gloss Paint was used throughout for the exterior decoration of Bedford Charity Homes.



De-la-Warr Pavilion, Architects :—Messrs. Erich Mendelsohn & Serge Chermareff, F.R.I.B.A.
Dockers' Insuline Priming Coat and Syntholux eggshell and glossy finish were used throughout the De-la-Warr Pavilion.

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Architects' Lighting Conferences

A series of conferences are being held at the Lighting Service Bureau, 2 Savoy Hill, W.C.2, on every Wednesday evening from January 27th to February 17th. Time, 7 o'clock.

The main object of these meetings is to encourage a very much closer co-operation between architects and lighting engineers, and also to provide both parties with an opportunity for examining the many new developments in lighting technique and practice that have occurred during the past twelve months. On Wednesday, February 3rd, T. P. Bennett, Serge Chermayeff, R. H. Uren, and R. O. Sutherland, will be the principal speakers; they will describe recent experiences in lighting practice and deal generally with modern lighting and its relation to architecture and decoration.

On February 10th "Regulations for the installation of electrical services" will be outlined and discussed by C. F. Raphael (Consulting Electrical Engineer) and H. W. Swann (Chief Electrical Inspector of Factories). On February 17th, H. H. Maisonneuve will speak on the "Lighting plans for the 1937 Paris Exhibition."

On each evening cold buffet will be available from 6 to 7 o'clock.

• • •



Bronze Springbok at South Africa House, Trafalgar Square (Sir Herbert Baker, R.A., and A. T. Scott, architects), from the models by Charles Wheeler, A.R.A., sculptor. Cast and made by the Morris Singer Company.

Trade Publications

Morris Singer Company

Two recently issued brochures are available from the Morris Singer Company: (1) Morris Metal Windows, (2) Morris Architectural Metalwork.

The former is a practical work of reference consisting of 7 information

sheets—in other words, it is well worthy of a place on your file.

The latter is an exceedingly well presented pictorial record of the Company's more recent decorative metalwork.

Application for copies should be addressed to the Company's head office at Dorset Road, S.W.8.

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Radiation Ltd.

The various firms associated in Radiation, Ltd., have co-operated in the production of a catalogue dealing with gas-heated cooking apparatus for hotels, hospitals, clubs, schools, etc. It is an "honest to God" catalogue, by which I mean that the manufacturers have been content to give you just the plain essential details and no "frills." Copies may be obtained from Radiation, Ltd., 164 Queen Victoria Street, E.C.4.

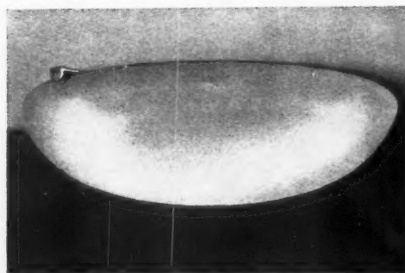
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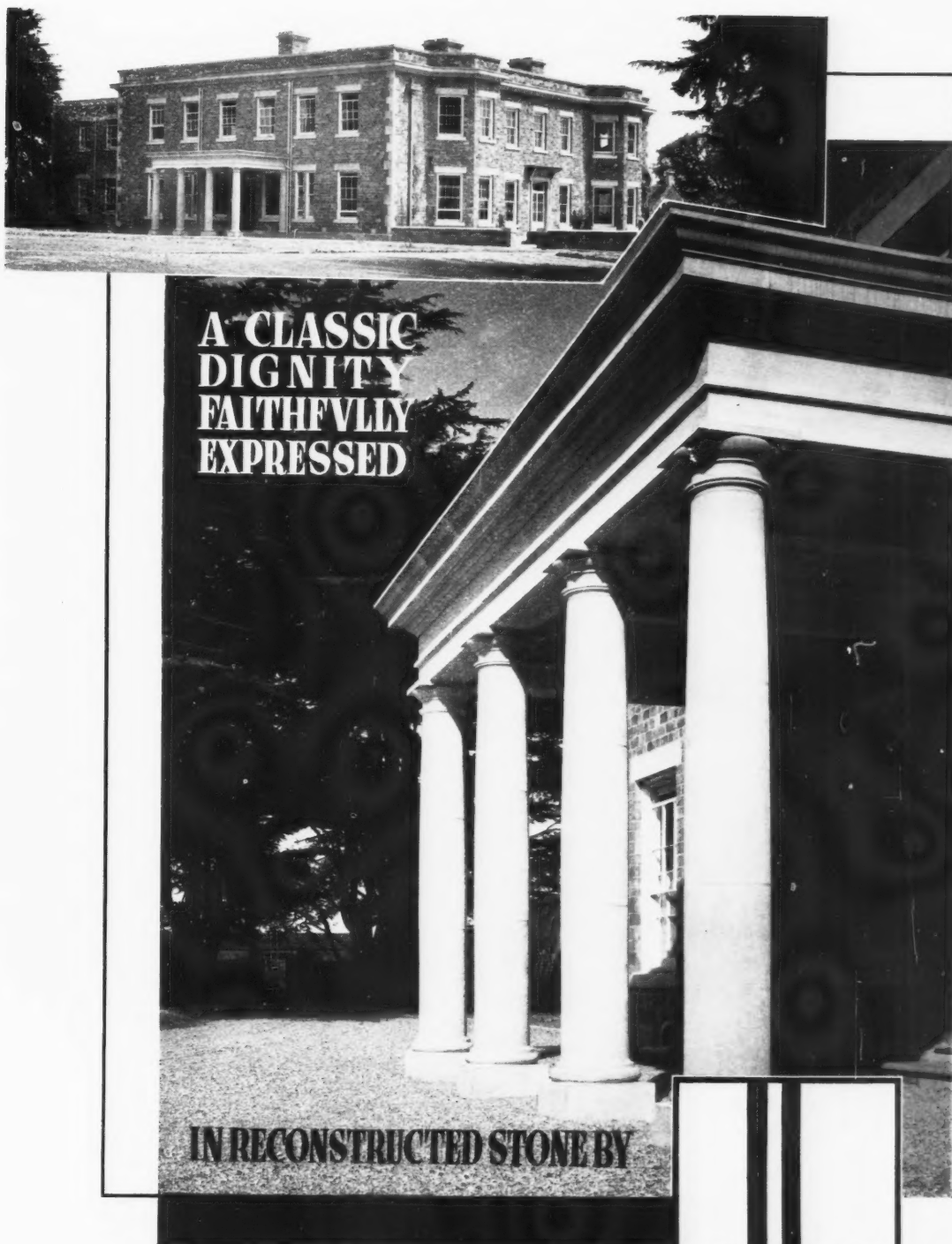
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F. & A.R.I.B.A., Chartered Architects,
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The Buildings Illustrated

Bungalow "A" at Whipsnade.
Architects: Lubetkin and Tecton.

The general contractors were Messrs. J. L. Kier & Co. Ltd., who also contracted for excavation, foundations, reinforced concrete, plumbing and plaster. Among the sub-contractors and craftsmen were the following:—Permanite Ltd. (roofing and pumice tiles), G. R. Speaker & Co. Ltd. (conit partitions), Thermolux Glass Co. Ltd., and Vitrea Drawn Sheet Glass Co. Ltd. (glass), Armstrong Cork Co. Ltd. (cork flooring tiles), G. N. Haden & Co. Ltd. (electric panel heating, electric wiring), Oswald Hollmann (electric light fixtures), Oscar Kanter Ltd. (door furniture), Williams and Williams Ltd. (window furniture and casements), F. A. Norris & Co. Ltd. (iron staircases), D. Burkle & Son Ltd. (joinery and furniture), Shanks & Co. Ltd. (sanitary fittings).

Bungalow "B" at Whipsnade.
Architects: Lubetkin and Tecton.

The general contractors were Messrs. J. L. Kier & Co. Ltd. Among the sub-contractors and craftsmen were the following:—Permanite Ltd. (roofing

pumice tiles), Thermolux Glass Co. Ltd., and Vitrea Drawn Sheet Glass Co. Ltd. (glass), Duncan Watson & Co. Ltd. (electric heaters, electric wiring), Troughton & Young Ltd. (electric light fixtures), Shanks & Co. Ltd. (sanitary fittings), Oscar Kanter Ltd. (door furniture), Williams & Williams Ltd. (casements and window furniture), D. Burkle & Son Ltd. (joinery), Plan Ltd. (furniture).

New Hospital at Scarborough.
Architect: Wallace Marchmont.

The general contractors were Messrs. Foster and Dicksee Ltd. Among the sub-contractors and craftsmen were the following:—Proctor and Lavender (facing bricks), London Brick Co. Ltd. (walling bricks), Caxton Floors Ltd. (hollow tile R.C. floors and R.C. stairs, etc.), James Slater & Co. Ltd. (heating, hot-water, ventilation, sterilizers, cooking plant, automatic combustion plant to boilers for heating), J. Peers & Sons (Portland stone copings, eills, etc.), Scarborough Gas Company ("Porteullis" gas fires), Troughton & Young Ltd. (electrical installation, fittings, emergency lighting equipment, etc.), Wm. Freer Ltd. (plumbing), Wm. Livesey & Sons (plastering), E. J.

Crowe (paintwork), Blundell Spence & Co. Ltd. (paint), Hollis Bros. & Co. Ltd. (teak block floors), Tonks & Sons (linoleum floors), Art Pavements & Decorations Ltd. (terrazzo and marble work), Cater & Co. Ltd. (tiling), Crittall Manufacturing Co. Ltd. (steel windows, roof lights and fanlights), Luxfer Ltd. (glass saucer dome lights), Doulton & Co. Ltd. (sanitary goods, drains, and fittings, linen chutes), Limmer & Trinidad Lake Asphalte Co. Ltd. (asphalte work), Johnsons Reinforced Concrete Eng. Co. Ltd. (reinforcement and R.C. foundations), Bratt Colbran & Co. Ltd. (special electric ward fires), James Gibbons & Co. Ltd. (ironmongery and medicine cabinets), J. P. White & Sons Ltd. (flush doors, lead lined), W. Rowntree & Sons Ltd. (Board Room furniture), Thackray & Co. (ward sterilizing equipment), Birmingham Guild Ltd. (iron railings to stairs, name panels, bronze floor covers), Moler Products Ltd. (hollow partitions), Merchant Trading Co. Ltd. (panelled (standard) doors), George Wright Ltd. (coal fires), Etchells Congdon and Muir Ltd. (electric bed and service lifts, hand power goods lifts), Scarborough Gas Co. (incinerator), W. J. Furse & Co. Ltd. (lightning conductor), P. C. Henderson Ltd. (sliding door racks), Staines Kitchen Equipment Ltd. (plate racks), Kodak Ltd. (X-ray viewing boxes), Ilford Ltd. (dark room developing unit), Educational Supply Associations Ltd. (pathological laboratory fittings), Hunter & Hyland (cubicle curtain runners), W. G. Canon and Sons Ltd. (body racks

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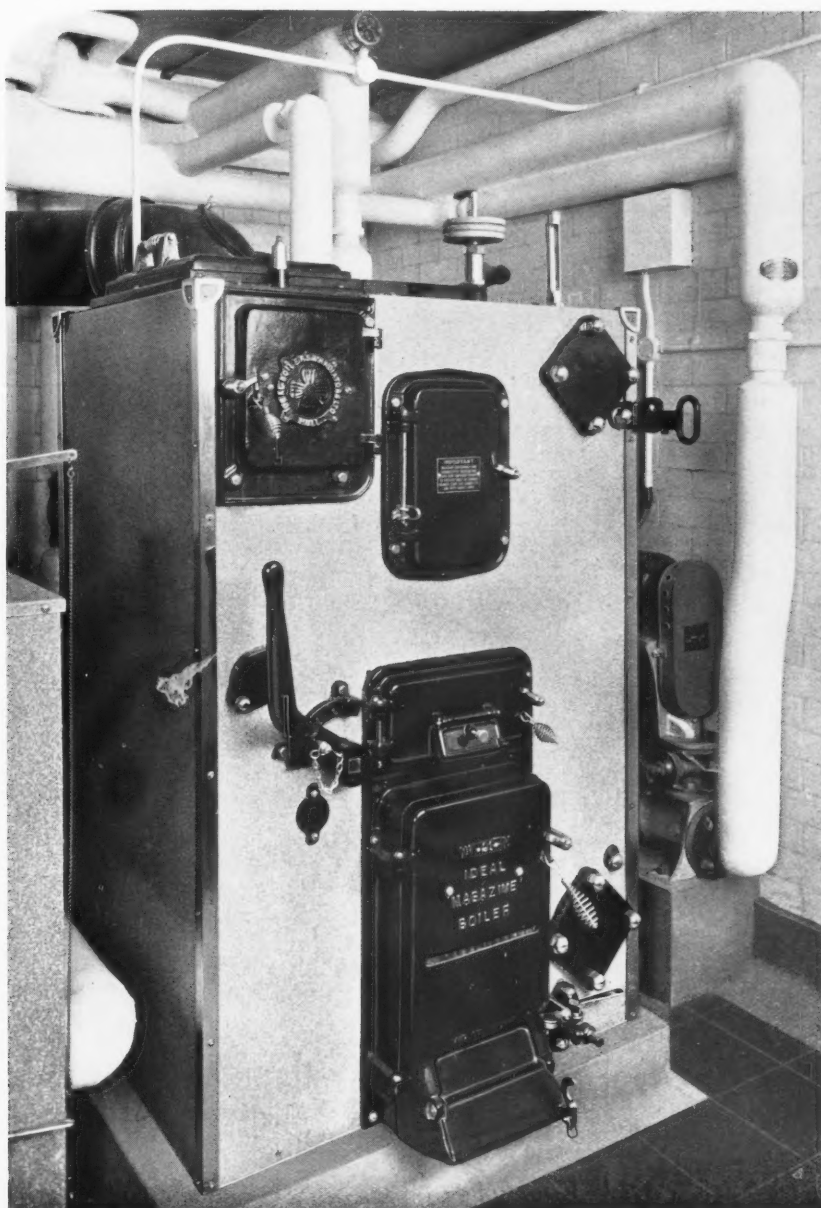
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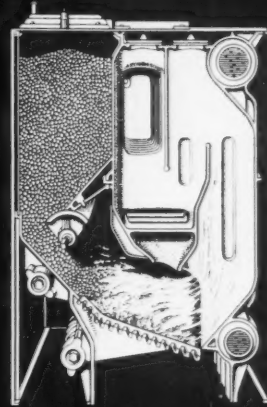
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ILLUSTRATED IN THIS
ISSUE — ARCHITECT:—
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in mortuary), D. & J. Tullis Ltd. (laundry machinery).

Athenaeum Court, Piccadilly, London.
Architects: Adie, Button and Partners.

The general contractors were the Trussed Concrete Steel Co. Ltd. Among the sub-contractors and craftsmen were the following:—Demolition & Construction Co. Ltd. (demolition), Imperial Chemical Industries Ltd. (pioneer blocks, partitions), H. W. Cullum & Co. Ltd. (patent flooring), Richard Crittall & Co., Ltd. (central heating and ventilation), Troughton & Young Ltd. (electric wiring, light fixtures, and heating), A. Grant & Sons (plumbing), Doulton & Co. Ltd. (sanitary fittings), Cork Insulation Co. Ltd. (stairtreads), Walter Cassey Ltd. (door furniture), Crittall Manufacturing Co. Ltd. (casements and window furniture), General Construction & Engineering Co. (iron staircases), Jos. Avery & Co. Ltd. (sunblinds), Wm. Nicholson & Sons (Leeds), Ltd. (joinery), Fenning & Co. Ltd. (stonework and marble), F. Burbridge & Co. Ltd. (tiling), Trollope and Sons (furniture), Marryat & Scott Ltd. (lifts), United Water Softeners Ltd. (water-softening plant).

Council Offices, Welwyn Garden City.
Architects: Elsom and Stone.

The general contractors were The Welwyn Builders Ltd. Among the sub-

contractors and craftsmen were the following:—Helical Bar & Engineering Co. Ltd. (hollow tile floors), F. H. Wheeler (electric light), Young Austen and Young Ltd. (heating), Horsley Smith & Co. (London) Ltd. (wood block floors), Frederick Tibbenham & Sons (flush doors), H. H. Martyn and Co. Ltd. (wrought iron panelling, fibrous plaster), Merryweather & Sons Ltd. (fire station equipment), Tile Decorations Ltd. (tiling), Art Pavements and Decorations Ltd. (terrazzo), Keystone Paint and Varnish Co. Ltd. (paint), Kinematograph Equipment Co. Ltd. (icon lino, blinds, carpets), Skellorn Edwards & Co. Ltd. (curtains), Peter Jones Ltd. (carpets), H. J. Perris, and James Gibbons Ltd. (ironmongery and sanitary fittings), Bath Cabinet Makers Co. Ltd. (furniture), Edgleys Ltd. (office furniture), Magneta Time Co. (clocks), Roberts Adlard & Co. Ltd. (roof tiling), Ragusa Asphalte Paving Co. Ltd. (asphalte), W. T. Lamb and Sons Ltd. (facing bricks), Shaws' Glazed Brick Co. Ltd. (faience), Newalls Insulation Co. Ltd. (acoustic plaster).

New Showroom in Bond Street, London.
Architect: Oliver Hill.

The general contractors were Messrs. G. E. Wallis & Co. Ltd. Among the sub-contractors and craftsmen were the following:—E. Pollard & Co. Ltd. (non-

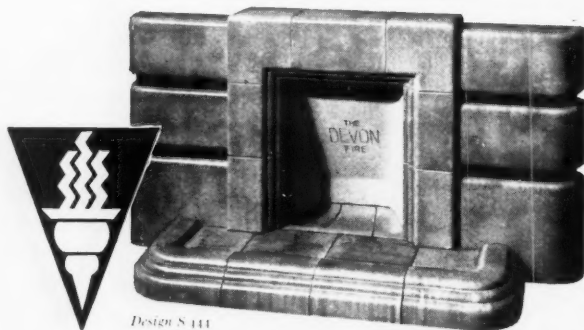
reflecting window and surround), Crittall Manufacturing Co. Ltd. (bronze entrance door), Pilkington's Tile & Pottery Co., and Pilkington Bros. Ltd. (floor tiling), Walter W. Jenkins & Co. Ltd. (marble threshold and panel), R. H. Boyland & Co. (electrical work), Paul Guieu (electrical fittings), British Vitrolite Co. Ltd. (glass wall tiling and shelving), Frederick Tibbenham Ltd. (furniture), Marion Dorn (rug), Eric Gill (carved marble panel to entrance), Elizabeth Arden (bathroom accessories).

New Showrooms in South Audley Street, London.

Architects: Stanley Hall & Easton, and Robertson.

The general contractors were Messrs. Holloway Bros. Ltd., who also contracted for joinery, decorative scheme, curtains and carpets. Among the sub-contractors and craftsmen were the following:—T. & W. Ide (glass and mirrors), James Latham & Co. Ltd. (oak floors), Turpins Parquet Floor Joinery & Paving Co. Ltd. (parquet flooring), F. H. Pride and Camille Espir Ltd. (electric light fixtures), James Keith & Blackman Co. Ltd. (ventilation), George Rome & Co. (London) Ltd. (decorative plaster), J. Whitehead & Sons Ltd. (stonework to shopfront, marble fireplace), Carter & Co. Ltd. (tiling), E. Pollard & Co. Ltd. (shopfront), Baldwins (Birmingham) Ltd. (cloakroom fittings).

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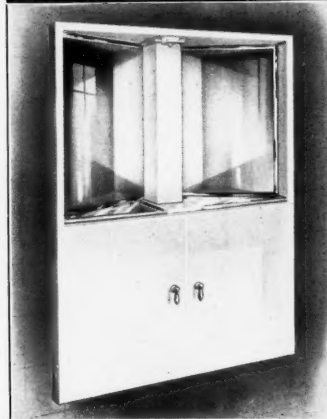
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